CETECOM ICT Services GmbH

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Accredited testing laboratory

DAR-Registration number:
DAT-P-176/94-D1

Test report no.:
4-2170-01-05/06

SG-2520 : Thuraya SAT/GSM Dual Mode Handheld Terminal

Table of contents

Enclosure

1 General Information

1.1 Notes

The test results of this test report relate exclusively to the test item specified in subclause 1.5. CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item.

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Tester:

Date	Name	Signature
22.11.2006	Andrea Kirsch	
22.11.2006	Karsten Geraldy	

Technical responsibility for area of testing:

Date	Name	Signature
22.11.2006	Karsten Geraldy	

CETECOM
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Accredited Test Laboratory
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1.2 Test laboratory

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State of accreditation: The Test laboratory is accredited according to DIN EN ISO/IEC 17025.
DAR-Registration number: DAT-P-176/94-D1

Accredited Bluetooth® Test Facility (BQTF)
BLUETOOTH is a trademark owned by Bluetooth SIG, Inc. and licensed to CETECOM

Test location, where different from CETECOM ICT Services GmbH:

Name : - not applicable -
Street : - not applicable -
Town : - not applicable -
Country : - not applicable -
Telephone and Telefax : - not applicable -

1.3 Applicant´s details

Name : Asia Pacific Satellite Industries Co., Ltd.
Department : Att. Mr. Hyoung-Won Ahn, General Manager
Street : 9FL, IT Castle 2-Dong, #550-1, Gasan-Dong
Town : GeumCheon-Gu, Seoul
Country : Korea
Telephone and Telefax : +82 2 2026 7780 / +82 2 2026 7772

Contact person's name : Mr. Hyoung-Won Ahn, General Manager
Telephone and Telefax : +82 2 2026 7780 / +82 2 2026 7772

1.4 Details of application

Date of receipt of order : 11.07.2006
Date of receipt of test item : 31.07.2006
Date(s) of test : 31.07. - 11.08.2006
Laboratory reference number : 020.06
Test report version : 5

Person(s) who have been present during the test: Mr. Pyo-Jin (Gerald) Kim, Mr. Kyung-Yong Kim, Mr. Y.S. Lee, Mr. Won-Jae Jung

1.5 Test item

1.5.1 General description

Type of test item : Thuraya SAT/GSM Dual Mode Handheld Terminal
Operating characteristics : GEM mode
Type identification : SG-2520 : Thuraya SAT/GSM Dual Mode Handheld Terminal
Serial number(s) : see following table

List of components:

No.	Equipment	Manufacturer	Type name (version, part number)		Serial number	Note no.	tested (Y/N)
1	SAT phone	Asia Pacific Satellite Industries Co.Ltd	SG-2520 SAT phone		IMEI: 35601300-060304-6		yes

Note:
1) The item can optionally be equipped with this additional component.
2) The item can optionally be equipped with this component instead of no. xxx
3) Because of conceptional and mechanical equality the no. xxx was/were representatively tested.
4) This component corresponds with the no. xxx but it's not fully provided.
5) The item can be combined with this component. The test of this component is documented in test report no.xxxxx/xxxxx/xx.
6) This component was sufficiently taken into account, see test report no. xxxxx/xxxxx/xx.
7) This component is not part of the test item - it was representatively used to establish the operation and test modes.
8) This component is integrated repeatedly in the item because of redundancy - the redundant components were not tested because of equality to the primary parts.
9) This component is not relevant relating to the requirements of the test specification as well as baseband equipment - the EMC conformity and eventually the approval for connection to public telecommunication networks are only expected.

Antenna system(s):

Antenna size (mm)	Reflector shape	Concept	Manufacturer	Type	Transmit gain dBi (midband)	Receive gain dBi (midband)	Polarization
134.05	-/-	vertical rod antenna	Asia Pacific Satellite Industries Co., Ltd.	SG-2520	more than +3.0dBic	more than +3.0dBic	LHCP

Technical descriptions and documents:

No.	Document(s)

Technical Data

Transmitter frequency range(s)		: 1626.5 - 1660.5 MHz	Channel spacing	: 31.25 kHz [1]
Receiver frequency range(s)		: 1525.0 - 1559.0 MHz		
Transmitter power	max. peak	: 3.2 W [4]	typical	: 1.8 W [4]
Radiated power (EIRP)	max. peak	: 8.1 dBW [2]	typical	: 5.6 dBW [2] [4]
Intermediate frequency(ies)		: 246 MHz [4]	Level (range)	: -20 dBm [4]
Frequency stability		: uncorrected: < ±5 ppm, corrected: < ±0.006 ppm [4]		
Kind of baseband signal		: voice / circuit data / packet data / fax		
Kind of modulation (s)		: π/4 - CQPSK [4]		
Occupied bandwidth (99% / 20 dB bandwidth)		: approx. 36.0 kHz (see annex 3, plot no. 3, 8 and 13) [3]		
Assigned bandwidth		: approx. 44.0 kHz (see annex 3, plot no. 5, 10 and 15) [3]		
Data rate(s) / FEC		: Tx: 2.4 / 4.8 / 9.6 / 14.4kbps / Convolution (1/2, 1/3, 1/4, 1/5) [4]		
Power supply		: typ. 3.7 Vdc [4]		
Kind of transmission acc. to FCC §2.201 + §2.202		: 36k0G1W [4]		
FCC ID		: TZ5SG-2520		

[1] channel spacing of Mobile
[2] for an antenna with an on-axis gain of at least +3.0 dBi
[3] for operating conditions defined below
[4] manufacturer's declaration

Additional information

SG-2520 is the Satellite Mobile Hand Held Terminal for Thuraya satellite mobile communication service based on GMR-1 and GMPRS-1. It supports various services such as voice, circuit data, packet data and fax etc.

The manufacturer declares a battery power supply of 3.7 Vdc. However, the conducted measurements in the test laboratory were performed with a battery dummy and 4.2 Vdc according to the manufacturer's wish.

1.5.2 Operating conditions

Operating condition 1: 1643.5 MHz / CH 544 (=fm, 1626.53125 MHz / Ch 1 =fu, 1660.46875 MHz / CH 1087 =fo), approx 3.2 W
Pi/4-CQPSK, 23.4 ksps (voice), FEC xxx
Operating condition 2: Idle-Mode (carrier off)

1.6 Test specifications

1) FCC 47 CFR (February 1, 2006), Part 15: Radio frequency devices
   §15.207 Conducted limits
   §15.209 Radiated emission limits, general requirement
2) FCC 47 CFR (October 1, 2005), Part 2: Frequency allocations and radio treaty matters
   §2.1046 Measurements required: RF power output
   §2.1049 Measurements required: Occupied bandwidth
   §2.1051 Measurements required: Spurious emissions at antenna terminals
   §2.1053 Measurements required: Field strength of spurious radiation
   §2.1055 Measurements required: Frequency stability
3) FCC 47 CFR (October 1, 2005), Part 25: Satellite communications
   §25.202 Frequencies, frequency tolerance and emission limitations
   §25.204 Power limits
   §25.216 Limits on emissions from mobile earth stations for protection of aeronautical radionavigation-satellite services

2 Technical test

2.1 Summary of test results

[X] No deviations from the technical specification(s) were ascertained in the course of the tests performed.

[ ] The deviations as specified in subclause 2.5 and annex 3 were ascertained in the course of the tests performed.

This test report:

[X] documents a first test

[ ] documents a repeat examination

[ ] documents a verification of documents

[ ] is only valid in association with test report no.: -----/-----/--.

Single test results are listed under subclause 2.5 and annex 3 of this report.

The test item was not tested to connect it with the public telecommunication network.

2.2 Test environment

The environment conditions are documented specially for each test in 2.5.2 and annex 3.

2.3 Measurement and test setup, measurement uncertainties

The measurement and test setup is in accordance to the specification and schematically shown in annex 1. The reference to each test is shown in 2.5.2 and annex 3. The measurement uncertainties are within the ranges, which are required in the test specifications. A closer inspection and precise consideration of the real measurement uncertainty and its documentation within this test report will be made only if any measured data is closer to the corresponding limit than the maximum uncertainty which is given in the specification. In this case special tests were performed by use of comparable methods and/or measuring equipment in order to prove the given test results are correct. The results of these additional tests will be reported only then if it is very critical to show that the limit is met or not.

2.4 Test equipment utilized

See annex 2

2.5 Test results

2.5.1 Test result overview

☐ in addition to test report no.:

Correspondence of the test item and its technical description:

☒ in accordance to the technical description
☐ not in accordance to the technical description

Performance test: Output power and spectrum of transmission:
Part 2: Frequency allocations and radio treaty matters; general rules and regulations
Section 2.1046 Measurements required: RF power output
Section 2.1049 Measurements required: Occupied bandwidth

☒ in accordance to the technical description
☐ not in accordance to the technical description

FCC 47 CFR (February 1, 2006)
Part 15: Radio frequency devices
Section 15.207 Conducted limits

☒ pass
☐ fail
☐ already tested (see test report no. xxx)
☐ not applicable

FCC 47 CFR (February 1, 2006)
Part 15: Radio frequency devices
Section 15.209 Radiated emission limits, general requirements

☒ pass
☐ fail
☐ already tested (see test report no. xxx)
☐ not applicable

FCC 47 CFR (October 1, 2005)
Part 2: Frequency allocations and radio treaty matters; general rules and regulations
Section 2.1055 Measurements required: Frequency stability
Part 25: Satellite communications
Section 25.202(d) Frequency tolerance of Earth stations

☒ pass
☐ fail
☐ already tested (see test report no. xxx)
☐ not applicable

FCC 47 CFR (October 1, 2005)
Part 2: Frequency allocations and radio treaty matters; general rules and regulations
Section 2.1051 Measurements required: Spurious emissions at antenna terminals
Part 25: Satellite communications
Section 25.202(f) Emission limitations

- [X] pass
- [ ] fail
- [ ] already tested (see test report no. xxx)
- [ ] not applicable

FCC 47 CFR (October 1, 2005)
Part 2: Frequency allocations and radio treaty matters; general rules and regulations
Section 2.1053 Measurements required: Field strength of spurious radiation
Part 25: Satellite communications
Section 25.202(f) Emission limitations

- [X] pass
- [ ] fail
- [ ] already tested (see test report no. xxx)
- [ ] not applicable

FCC 47 CFR (October 1, 2005)
Part 25: Satellite communications
Section 25.204 Power limits

- [X] pass
- [ ] fail
- [ ] already tested (see test report no. xxx)
- [ ] not applicable

FCC 47 CFR (October 1, 2005)
Part 25: Satellite communications
Section 25.216 Limits on emissions from mobile earth stations for protection of aeronautical radionavigation-satellite services

- [X] pass
- [ ] fail
- [ ] already tested (see test report no. xxx)
- [ ] not applicable

2.5.2 Test documentation

Contents:

- Correspondence of the test item and its technical description	[X]	-/-
- Function test, RF power output and occupied bandwidth	[X]	§2.1046 and §2.1049
- Radio frequency devices, Conducted limits	[X]	§15.207
- Radio frequency devices, Radiated emission limits, general requirements	[X]	§15.209
- Frequency tolerance of Earth stations	[X]	§2.1055 and §25.202(d)
- Conducted spurious emission limitations	[X]	§2.1051 and §25.202(f)
- Radiated spurious emission limitations	[X]	§2.1053 and §25.202(f)
- Power limits	[X]	§25.204
- Limits on emissions from mobile earth stations for protection of aeronautical radionavigation-satellite services	[X]	§25.216

Reference document: FCC 47 CFR (October 1, 2005)
Part 25 - Satellite Communications
Section: -/- Correspondence of the test item and its technical description

Remark and establishing:
The test item and its technical description (see subclause 1.5.1) was compared by spot checking.

Result of test: In accordance to the technical description [X]
No accordance to the technical description [ ]

Reference document: FCC 47 CFR (October 1, 2005)
Part 25 - Satellite Communications
Section: -/- Function tests
2.1046 Measurements required: RF power output
2.1049 Measurements required: Occupied bandwidth

Environment conditions: see also plots given below

date	temperature in °C	rel. humidity in %	voltage in V	laboratory / test system
04.08.2006	25	55	4.2	Laboratory ´RSC-Sat´

Power measurement by spectrum analyzer, 1 MHz measurement bandwidth, max-hold mode

state	frequency (range)	reading level	data of correction attenuation / loss					result					remark
			direct coupl.		cable	att.	power splitt.	referred to output HPA			ant. gain	EIRP	
	MHz	dBm	dB	dB	dB	dB	dB	dBm	(-30) dBW	(10^) W	dBi	dBW	
mod	1643.5	24.2	-/-	0.2	0.7	10.0	-/-	35.1	5.1	3.25	3.0	8.1	CH 544
mod	1626.53125	24.0	-/-	0.2	0.7	10.0	-/-	34.9	4.9	3.1	3.0	7.9	CH 1
mod	1660.46875	24.0	-/-	0.2	0.7	10.0	-/-	34.9	4.9	3.1	3.0	7.9	CH 1087

cw = continuous wave mod = modulated

Occupied Bandwidth:
measured value: 36.0 kHz, see also annex 3, plot 3, 8 and 13

Operating conditions of DUT:
see subclause 1.5.2: Operating condition 1 (deviations see table above)

Test setup(s):
see annex 1, test setup 1.2hk and 1.2hgj

Test equipment:
see annex 2, subclause 3: C217, R001, U214

Data of correction:
see annex 4

Photo documentation:
see annex 5

Remark and establishing:
see annex 3, part 1 plot 1 - 15

Result of test: In accordance to the technical description [X]
No accordance to the technical description [ ]

Reference document: FCC 47 CFR (February 1, 2006)
Part 15 - Radio frequency devices
Section: 15.207 Conducted limits (150 kHz - 30 MHz)

Result of test: see annex 3, plot 12

Reference document: FCC 47 CFR (February 1, 2006)
Part 15 - Radio frequency devices
Section: 15.209 Radiated emission limits, general requirements

Environment conditions: see following plots

date	temperature in °C	rel. humidity in %	voltage in V	laboratory / test system
02.08.2006	25	50	4.2	Anechoic chamber ´F´
03.08.2006	25	50	4.2	Anechoic chamber ´C´
03.08.2006	25	50	4.2	Laboratory ´RSC-Sat´

Test results:

no.	frequency (range)	reading level	angle	data of correction							ant.-pol.		result		limit value	result above limit	plot
				attenuation / loss				gain									
				free field		cable		ant.	ampl.		v	h					
	MHz	dBm	°	m	dB	dB	dB	dB	dB	dB	x	x	dBµV/m	dBµV/m	dBµV/m	dB	No.
1	.009 - 30											X					16
2	30 - 4000										X	X					20
3	4G - 12G										X	X					21
4	12G - 20G										X	X					22
5																	

[X] Data of correction is considered in the reading level. These correction values are reported in the quality assurance documentation of the test system - because of clearness these correction data are not included in this test report.
[X] The spurious emissions which are shown in the plots given above were detected.
[ ] No spurious emissions were detected.
[ ] The table above contains the most important emissions only. Further information are shown in the given plots.
[ ] The measurement value is out of spec. The difference to the limit value is in the range of measurement uncertainty, however.

Operating conditions of DUT:
see subclause 1.5.2: Operating condition 2, Idle Mode

Test setup(s):
see annex 1, test setup 2.1, 2.2 and 2.3

Test equipment:
see annex 2, subclause 1, 2 and 3: 1001 - 1013, 3001 - 3010, A037, C217, R001, U214

Data of correction:
see annex 4

Photo documentation:
see annex 5

Remark and establishing:
If the table above is not completely filled out the missing values can be found in the given plots.
The necessary calculations are done there.

Result of test: pass [X] fail [ ]

Reference document: FCC 47 CFR (October 1, 2005)
Part 25 - Satellite Communications
Section: 25.202(d) Frequency tolerance of Earth stations
2.1055 Measurements required: Frequency stability
Conducted measurements within the band

Environment conditions:

date	temperature in °C	rel. humidity in %	voltage in Vdc	laboratory / test system
03.08.2006	-30 to +50	-/-	3.6 - 4.2	Laboratory ´RSC-Sat´

Test results:

no.	temperature °C	fm [MHz]	left [MHz]	right [MHz]	current [MHz]	deviation [Hz]	deviation ppm	remark
1	-30	1643.5	1643.485176	1643.514343	1643.49976	-240.5	-0.15	
2	-20	1643.5	1643.485096	1643.514343	1643.49972	-280.5	-0.17	
3	-10	1643.5	1643.485176	1643.514423	1643.4998	-200.5	-0.12	
4	0	1643.5	1643.485417	1643.514663	1643.50004	40.0	0.02	
5	+10	1643.5	1643.485337	1643.514583	1643.49996	-40.0	-0.02	
6	+20	1643.5	1643.485096	1643.514503	1643.4998	-200.5	-0.12	
7	+30	1643.5	1643.484936	1643.514263	1643.4996	-400.5	-0.24	
8	+40	1643.5	1643.484776	1643.513942	1643.499359	-641.0	-0.39	
9	+50	1643.5	1643.484856	1643.513862	1643.499359	-641.0	-0.39	

Operating conditions of DUT:
see subclause 1.5.2: Operating condition 1, fm

Test setup(s):
see annex 1, test setup 1.2cdhgj

Test equipment:
see annex 2, subclause 3: C217, R001, U214

Photo documentation:
see annex 4

Limit information:
reference frequency ± 0.001 % (10 ppm)

Remark and establishing:
Tests were performed with Spectrum analyzer HP 8565E.
After reaching the temperature given in the table above tests were paused for at least 15 minutes for temperature compensation of the DUT. The power supply voltage was adjusted in the above given range. No significant variation in the carrier frequency was determined.

The manufacturer declared a frequency stability of < ±5 ppm uncorrected and < ±0.006 ppm corrected.

Result of test: pass [X] fail [ ]

Reference document: FCC 47 CFR (October 1, 2005)
Part 25 - Satellite Communications
Section: 25.202(f) Emission limitations
2.1053 Measurements required: Field strength of spurious radiation
Radiated measurements

Environment conditions:

date	temperature in °C	rel. humidity in %	voltage in V	laboratory / test system
02.08.2006	25	50	4.2	Anechoic chamber ´F´
02.08.2006	25	50	4.2	Anechoic chamber ´C´
08.08.2006	25	50	4.2	Laboratory ´RSC-Sat´

Test results:

no.	frequency (range)	reading level	angle	data of correction							ant.-polar.		result		limit value	result above limit	plot
				attenuation / loss				gain						(-6dB)			
				free field		cable		ant.	ampl.		v	h		10m			
	MHz	dBµV/m	°	m	dB	dB	dB	dB	dB	dB	x	x	dBµV/m	dBµV/m	dBµV/m	dB	no.
1	25 - 4000										X	X					17
2	4G-12.5G										X	X					18
3	12G - 20G										X	X					19
4																	
5																	
6																	

[X] Data of correction is considered in the reading level. These correction values are reported in the quality assurance documentation of the test system - because of clearness these correction data are not included in this test report.
[X] The spurious emissions which are shown in the plots given above were detected.
[ ] No spurious emissions were detected.
[ ] The table above contains the most important emissions only. Further information are shown in the given plots.
[ ] The measurement value is out of spec. The difference to the limit value is in the range of measurement uncertainty, however.

Operating conditions of DUT:
see subclause 1.5.2: Operating condition 1

Special quality of measurement:

Test setup(s):
see annex 1, test setup 2.1, 2.2 and 2.3

Test equipment:
see annex 2, subclause 2 and 3: 3001 - 3010, A037, C217, R001, U214

Data of correction:

Photo documentation:
see annex 5

Remark and establishing:
If the table above is not completely filled out the missing values can be found in the given plots.
The necessary calculations are done there.
The radiated measurements were performed with a dummy load connected to the DUT and a measuring system including turntable and antenna lift to cover all three antenna planes.

Result of test: pass [X] fail [ ]

Reference document: FCC 47 CFR (October 1, 2005)
Part 25 - Satellite Communications
Section: 25.202(f) Emission limitations
2.1051 Measurements required: Spurious emissions at antenna terminals
Conducted measurements

Result of test: see annex 3, plot 23 - 56

Reference document: FCC 47 CFR (October 1, 2005)
Part 25 - Satellite Communications
Section: 25.204 Power limits

Environment conditions:

date	temperature in °C	rel. humidity in %	voltage in V	laboratory / test system
22.11.2006	22	50	4.2	Anechoic chamber ´C´

Test results:

no.	frequency (range) MHz	channel CH	reading level dBm	system attenuation free field attenuation, antenna gain, cable loss dB	antenna polar. v x	antenna polar. h x	result dBm	linear -> circular correction dB	result dBm	limit dBm / dBW
1	1626.53125	1	-12.0	45.0	X		33.0	3	36.0	70 / 40
2	1643.50000	544	-12.0	44.9	X		32.9	3	35.9	70 / 40
3	1660.46875	1087	-12.1	44.9	X		32.8	3	35.8	70 / 40

Operating conditions of DUT:
see subclause 1.5.2: Operating condition 1

Test setup(s):
see annex 1, test setup 2.2

Test equipment:
see annex 2, subclause 2: 3001 - 3010

Remark and establishing:
To measure the EIRP the EUT was placed on a turntable in a 5-meter test chamber. The emissions from the EUT were measured continuously at every azimuth by rotating the turntable. The linear polarized receiving antenna was mounted on a mast to determine the vertical polarization. Both the horizontal and vertical field components of the EUT were measured by rotating the EUT manually. The received level was recorded. The EUT was then replaced with a calibrated transmit antenna and signal generator. System attenuation was then determined for each Tx carrier frequency of the DUT by measuring the power supplied to the substitution antenna with the gain of the substitution antenna and the reading level on the spectrum analyzer. As specified above, the limit is +40 dBW in any 4 kHz band (= 70 dBm / 4 kHz). The analyzer was set to a 3 kHz resolution bandwidth. The corresponding BW correction factor was added to the reading level.

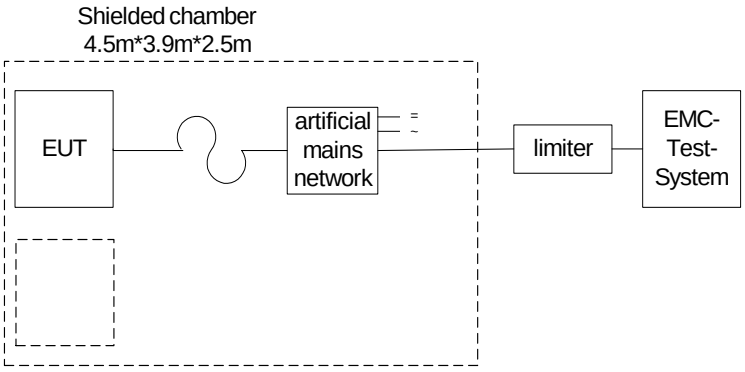
Result of test: pass [X] fail [ ]

Reference document: FCC 47 CFR (October 1, 2005)
Part 25 - Satellite Communications
Section: 25.216 Limits on emissions from mobile earth stations for protection of aeronautical radionavigation-satellite services

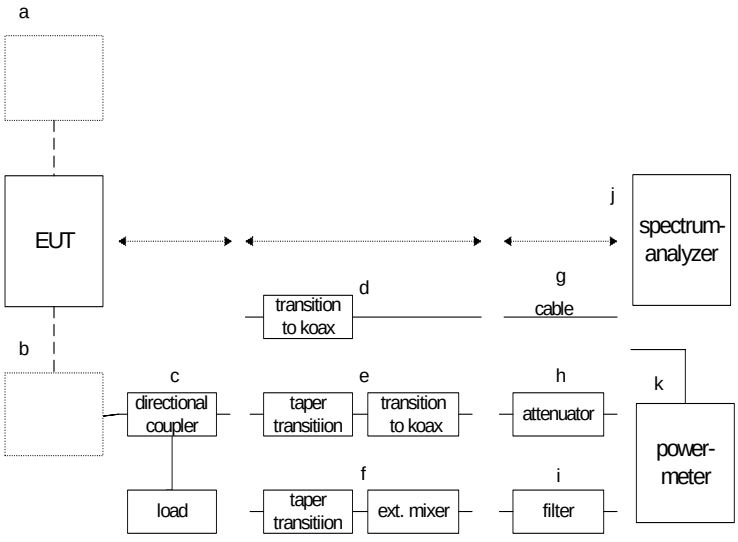
Result of test: see annex 3, plot 57 - 60

Annex 1: Measurement and test setups - schematic diagrams

1. Conducted measurements

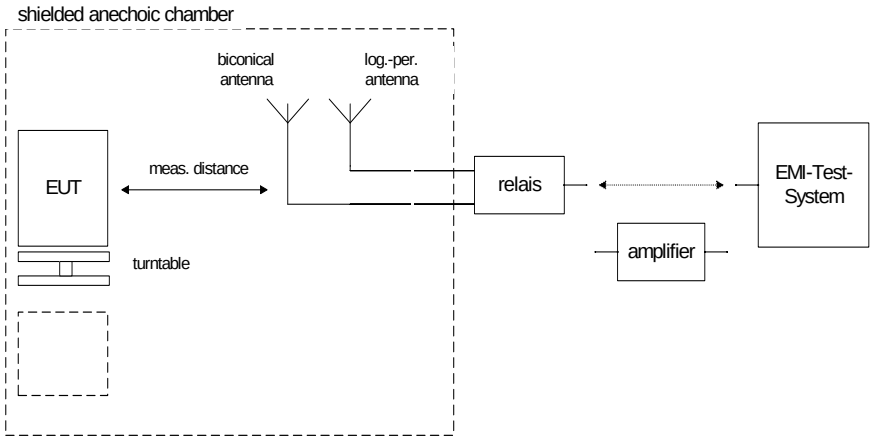


Setup 1.1

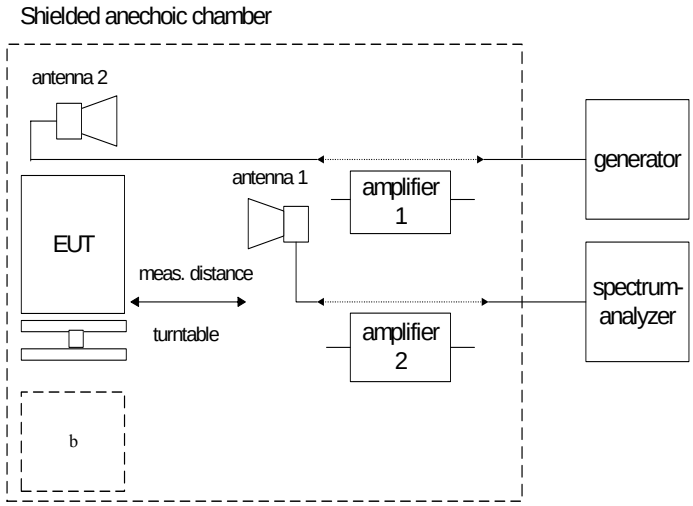


Setup 1.2 x...x

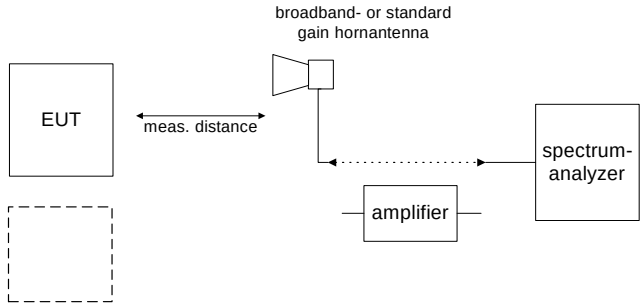
2. Radiation measurements



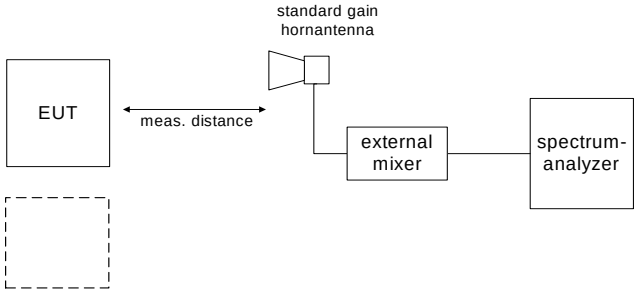
Setup 2.1



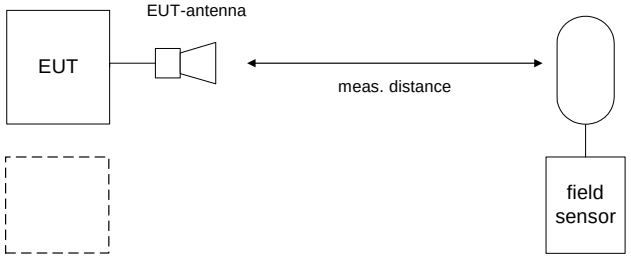
Setup 2.2



Setup 2.3



Setup 2.4



Setup 2.5

3. Measuring the EIRP of Spurious/Harmonic Emissions using Substitution Method

The following steps describe the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2003 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 1660.5 MHz. This was rounded up to 20 GHz. The spectrum was scanned with the mobile station transmitting at carrier in the middle of the transmit band.

The final open field emission (here 10m semi-anechoic chamber listed by FCC) test procedure is as follows:

a) The test item was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna.
b) The antenna output was terminated in a 50 ohm load.
c) A double ridged waveguide antenna was placed on an adjustable height antenna mast 3 meters from the test item for emission measurements.
d) Detected emissions were maximized at each frequency by rotating the test item and adjusting the receive antenna height and polarization. The maximum meter reading was recorded. The radiated emission measurements of the harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and 1 MHz bandwidth. If the harmonic could not be detected above the noise floor, the ambient level was recorded.
e) Now each detected emissions were substituted by the Substitution method, in accordance with the TIA/EIA 603.

All measurements were done in horizontal and vertical polarization plane, the plot(s) show the worst case of both.

Annex 2: Measuring equipment used (statement of inventory)

1. EMC-Testcenter (006)

Item No.	X	Measuring-equipment	Manufacturer	Type	Serialnumber	Identnumber	#	Cal.-/Verif.-cycle
1001		Controler	Rohde & Schwarz	PSM 7	883086/026	300002208	1	12 Mon.
1002		Spectrum monitor	Rohde & Schwarz	EZM	883086/026	300002208	1	12 Mon.
1003		Test receiver	Rohde & Schwarz	ESH3	881515/002	300002490	1	12 Mon.
1004		Relais matrix	Rohde & Schwarz	PSU	882943/029	300001484	1	12 Mon.
1005		Artificial mains network	Rohde & Schwarz	ESH2 Z5	882394/007	300001481	1	12 Mon.
1006		Artificial mains network	Rohde & Schwarz	ESH3 Z5	861189/014	300001458	1	12 Mon.
1007		Artificial mains network	Rohde & Schwarz	ESH3 Z5	892475/017	300002209	1	12 Mon.
1008		Artificial mains network	Rohde & Schwarz	ESH3 Z5	894981/019	300001077	1	12 Mon.
1009		Artificial mains network	Rohde & Schwarz	ESH3 Z6	836501652	300002210	1	12 Mon.
1010		Artificial mains network	Rohde & Schwarz	ESH3 Z6	861406/005	300001518	1	12 Mon.
1011		Artificial mains network	Rohde & Schwarz	ESH3 Z6	893689/012	300001504	1	12 Mon.
1012		Power supply	Hewlett Packard	6032A	2818A-03449	300002120	1	12 Mon.
1013		Loop antenna	Rohde & Schwarz	HMO20	832211/003	300002243	1	12 Mon.

2. Anechoic chamber ´C´

Item No.	X	Measuring-equipment	Manufacturer	Type	Serialnumber	Identnumber	#	Cal.-/Verif.-cycle
3001		Spectrum Analyzer	Hewlett Packard	8566B	2747A05306	300001000	1	12 Mon.
3002		Spec. Analyzer Display	Hewlett Packard	85662A	2816A16541	300002297	1	12 Mon.
3003		Quasi-Peak-Adapter	Hewlett Packard	85650A	2811A01131	300000999	1	12 Mon.
3004		RF-Preselector	Hewlett Packard	85685A	2833A00768	400000081	1	12 Mon.
3005		Relais matrix	Hewlett Packard	3488A	2719A15012	300001143	1	12 Mon.
3006		Power supply	Hewlett Packard	6032A	2818A03450	300001040	1	12 Mon.
3007		Amplifier	Parzich GMBH	js42-00502650-28-5a	928979	300003143	1	12 Mon.
3008		Biconical antenna	Emco	3104	3758	300001602	1	12 Mon.
3009		Log.-per. antenna	Emco	3146	2130	300001603	1	12 Mon.
3010		Double ridged guide ant.	Emco	3115	3088	300001032	1	12 Mon.

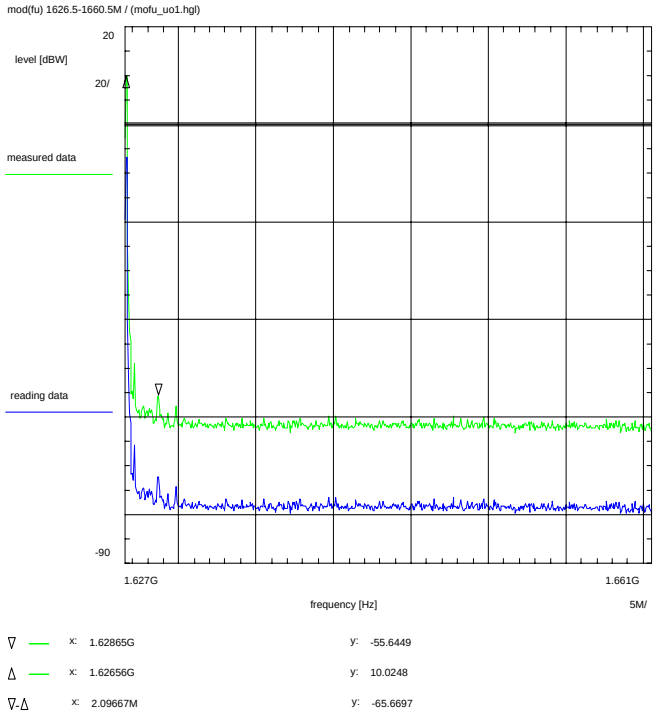
3. Laboratory ´RSC-Sat´

Item No.	X	Measuring-equipment	Manufacturer	Type	Serialnumber	Identnumber	#	Cal.-/Verif.-cycle
A037		Horn Ant. 1-26.5GHz	EMCO	3115	8812-3089	300000307	1	12 Mon.
C217		1.5 m 50 Ω / K	Insulated Wire Inc.	KPS-1533-590	101995	300002290	1	12 Mon.
R001		Spectrum analyzer	Hewlett Packard	HP 8565E	3515A00283	300000916	1	12 Mon.
R022		Peak Power Analyser	Hewlett-Packard	8990A	3128A00169	300002263	1	12 Mon.
R023		Peak Power Sensor	Hewlett-Packard	84813A	3128A00169	300002264	1	12 Mon.
11b		Microw. Sys. Amplif. 0.5-26.5GHz	Hewlett-Packard	83017A	3123A00105	300002267	1	24 Mon.
U214		Attenuator 10dB, N-con.	Spinner	BN 745379	7/93	400000047	1	24 Mon.
WHPF		Highpass filter	TRILITHIC	5HC2600/12750-1.5-KK	-/-	300000104	1	24 Mon.

Annex 3: Measurement results

Annex 3 consists of 62 pages including this page.

Annex 3: Measurement result no. 1 (61)



Subclause: -/- Function test
Modulated rf-carrier at the lower edge of the band (fu)
Measurement within the band

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: measurement for orientation

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 13:15:51	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.6265	GHz
Stop frequency:	1.6605	GHz
Center frequency:	1.6435	GHz
Frequency span:	34	MHz
Input attenuation:	40	dB
Resolution-BW:	30	kHz
Video-BW:	30	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

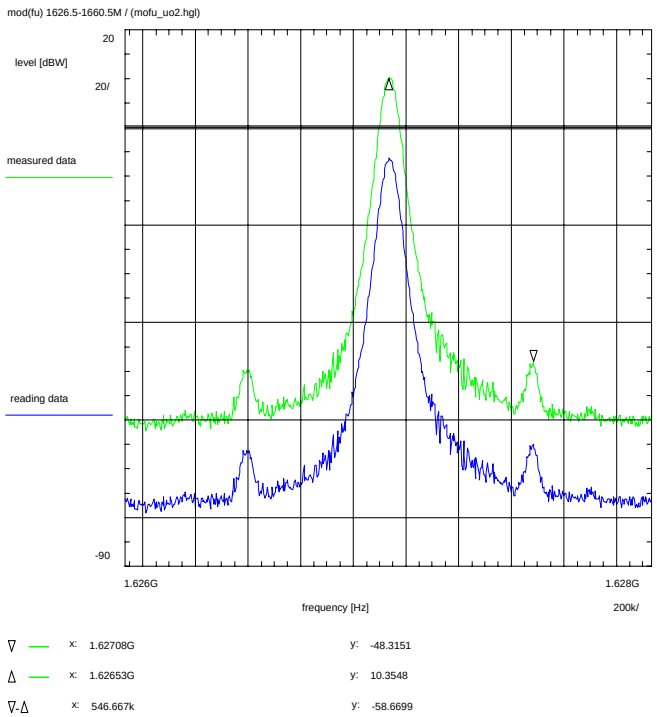
Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	16.7	dB

Limit:
no limits defined

This test serves to verify the general function of the EUT and for orientation regarding to the spurious emissions which are expected within the band, furthermore for comparison of the actual power with the rated value at modulated carrier adjusted as close to the lower edge of the operating frequency band.

Remarks:
Test of general function of the EUT and measurement for orientation

Annex 3: Measurement result no. 2 (61)



Subclause: -/- Function test
Modulated rf-carrier at the lower edge of the band (fu)
Measurement within the band

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: measurement for orientation

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 13:17:25	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.62553125	GHz
Stop frequency:	1.62753125	GHz
Center frequency:	1.62653125	GHz
Frequency span:	2	MHz
Input attenuation:	40	dB
Resolution-BW:	30	kHz
Video-BW:	30	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

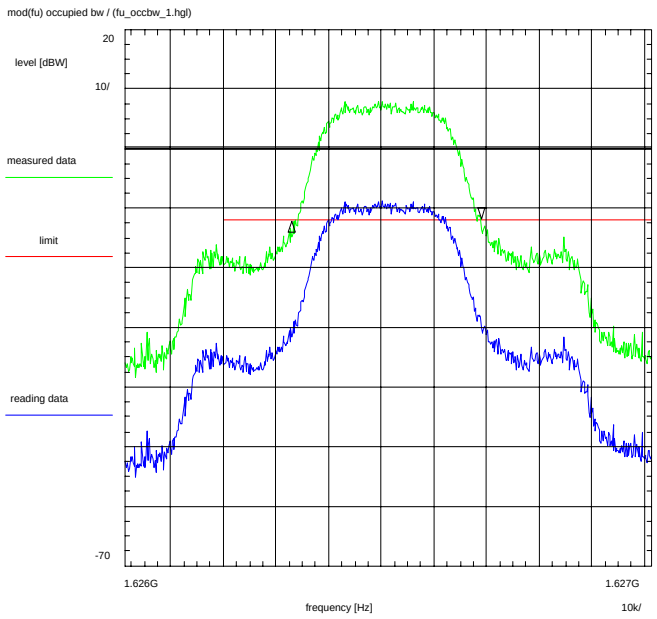
Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	16.7	dB

Limit:
no limits defined

This test serves to verify the general function of the EUT and for orientation regarding to the spurious emissions which are expected within the band, furthermore for comparison of the actual power with the rated value at modulated carrier adjusted as close to the lower edge of the operating frequency band.

Remarks:
Test of general function of the EUT and measurement for orientation

Annex 3: Measurement result no. 3 (61)



Subclause: -/- Function test
Modulated rf-carrier at the lower edge of the band (fu)
Determination of the ´occupied bandwidth´

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Determination of the ´occupied bandwidth´

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 13:20:59	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.62648125	GHz
Stop frequency:	1.62658125	GHz
Center frequency:	1.62653125	GHz
Frequency span:	100	kHz
Input attenuation:	40	dB
Resolution-BW:	3	kHz
Video-BW:	3	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

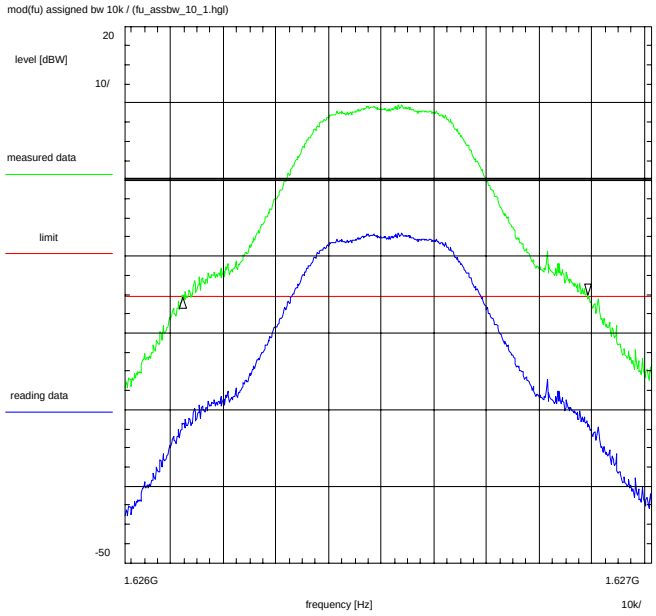
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	16.7	dB

Limit:
The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).
This occupied bandwidth corresponds to the 20 dB-bandwidth.

Remarks:
Determination of the ´occupied bandwidth´ at fu:
The measured value is about 36 kHz (delta marker)
Measurement with 3 kHz resolution filter and maximum-hold.

Annex 3: Measurement result no. 4 (61)



Subclause: -/- Function test
Modulated rf-carrier at the lower edge of the band (fu)
Determination of the ´assigned bandwidth´

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Determination of the ´assigned bandwidth´

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 13:33:38	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.62648125	GHz
Stop frequency:	1.62658125	GHz
Center frequency:	1.62653125	GHz
Frequency span:	100	kHz
Input attenuation:	40	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

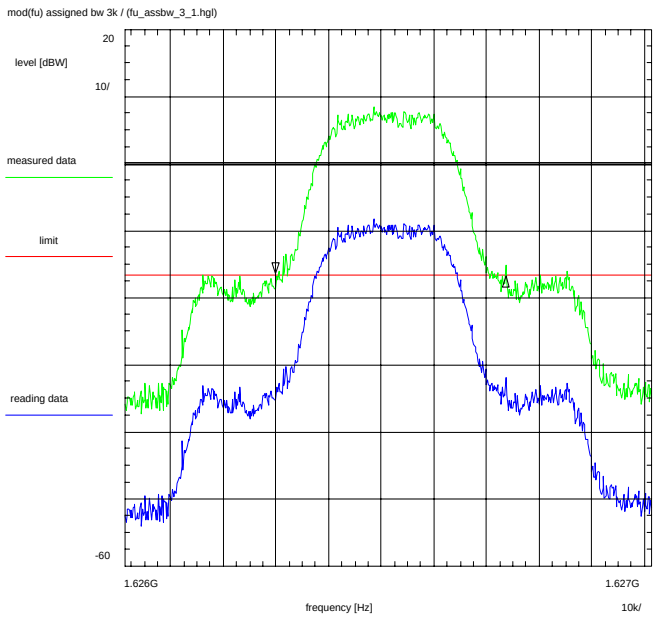
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	16.7	dB

Limit:
no limits defined
The limit line in the plot of -25dBc/4kHz is useful for orientation and corresponds to the restriction for ´Emission limitations´ (see 25.202 f)).

Remarks:
Determination of the ´assigned bandwidth´ at fu:
The measured value is about 77 kHz (delta marker)
Measurement with 10 kHz resolution filter and maximum-hold.

Annex 3: Measurement result no. 5 (61)



Subclause: -/- Function test
Modulated rf-carrier at the lower edge of the band (fu)
Determination of the ´assigned bandwidth´

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Determination of the ´assigned bandwidth´

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 13:40:11	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.62648125	GHz
Stop frequency:	1.62658125	GHz
Center frequency:	1.62653125	GHz
Frequency span:	100	kHz
Input attenuation:	40	dB
Resolution-BW:	3	kHz
Video-BW:	3	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

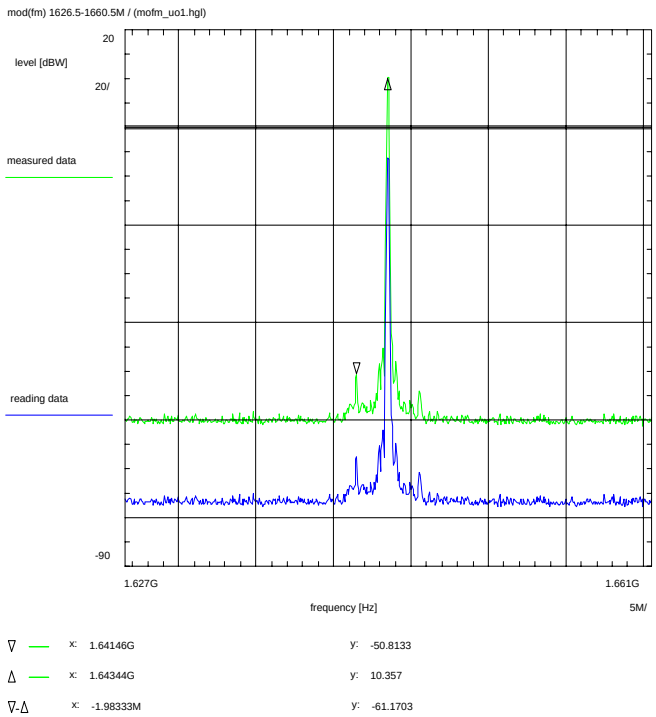
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	16.7	dB

Limit:
no limits defined
The limit line in the plot of -25dBc/4kHz is useful for orientation and corresponds to the restriction for ´Emission limitations´ (see 25.202 f)).

Remarks:
Determination of the ´assigned bandwidth´ at fu:
The measured value is about 44 kHz (delta marker)
Measurement with 3 kHz resolution filter and maximum-hold.

Annex 3: Measurement result no. 6 (61)



Subclause: -/- Function test
Modulated rf-carrier in the middle of the band (fm)
Measurement within the band

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: measurement for orientation

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 10:01:38	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.6265	GHz
Stop frequency:	1.6605	GHz
Center frequency:	1.6435	GHz
Frequency span:	34	MHz
Input attenuation:	40	dB
Resolution-BW:	30	kHz
Video-BW:	30	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

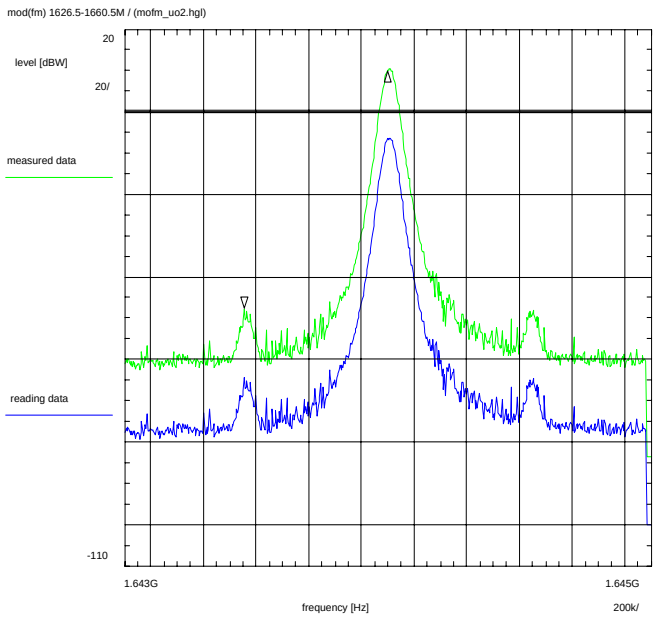
Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	16.7	dB

Limit:
no limits defined

This test serves to verify the general function of the EUT and for orientation regarding to the spurious emissions which are expected within the band, furthermore for comparison of the actual power with the rated value at modulated carrier adjusted in the middle of the band (EIRP).

Remarks:
Test of general function of the EUT and measurement for orientation

Annex 3: Measurement result no. 7 (61)



Subclause: -/- Function test
Modulated rf-carrier in the middle of the band (fm)
Measurement within the band

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: measurement for orientation

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 10:03:53	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.6425	GHz
Stop frequency:	1.6445	GHz
Center frequency:	1.6435	GHz
Frequency span:	2	MHz
Input attenuation:	40	dB
Resolution-BW:	30	kHz
Video-BW:	30	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

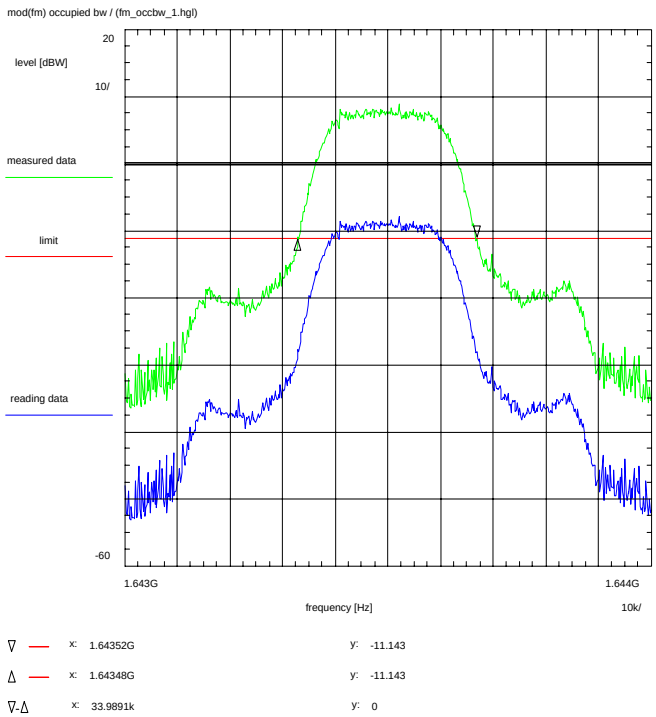
Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	16.7	dB

Limit:
no limits defined

This test serves to verify the general function of the EUT and for orientation regarding to the spurious emissions which are expected within the band, furthermore for comparison of the actual power with the rated value at modulated carrier adjusted in the middle of the band (EIRP).

Remarks:
Test of general function of the EUT and measurement for orientation

Annex 3: Measurement result no. 8 (61)



Subclause: -/- Function test
Modulated rf-carrier in the middle of the band (fm)
Determination of the ´occupied bandwidth´

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Determination of the ´occupied bandwidth´

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 10:21:51	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.64345	GHz
Stop frequency:	1.64355	GHz
Center frequency:	1.6435	GHz
Frequency span:	100	kHz
Input attenuation:	40	dB
Resolution-BW:	3	kHz
Video-BW:	3	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

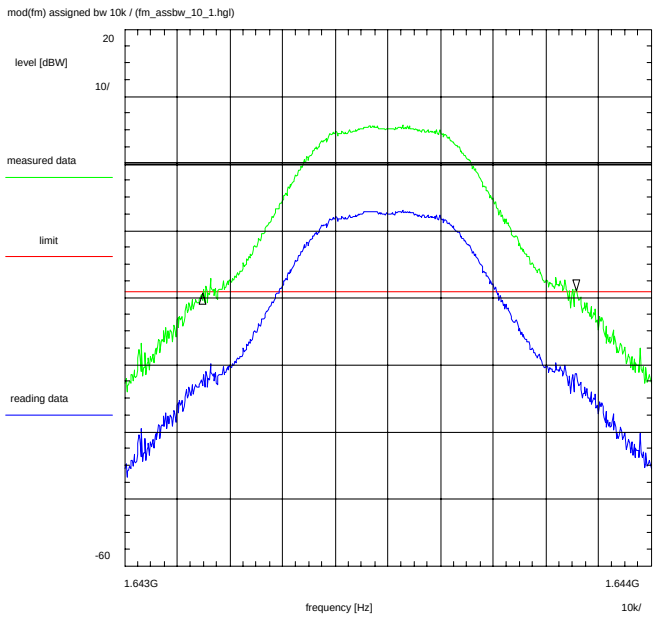
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	16.7	dB

Limit:
The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).
This occupied bandwidth corresponds to the 20 dB-bandwidth.

Remarks:
Determination of the ´occupied bandwidth´ at fm:
The measured value is about 34 kHz (delta marker)
Measurement with 3 kHz resolution filter and maximum-hold.

Annex 3: Measurement result no. 9 (61)



Subclause: -/- Function test
Modulated rf-carrier in the middle of the band (fm)
Determination of the ´assigned bandwidth´

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Determination of the ´assigned bandwidth´

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 10:25:47	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.64345	GHz
Stop frequency:	1.64355	GHz
Center frequency:	1.6435	GHz
Frequency span:	100	kHz
Input attenuation:	40	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

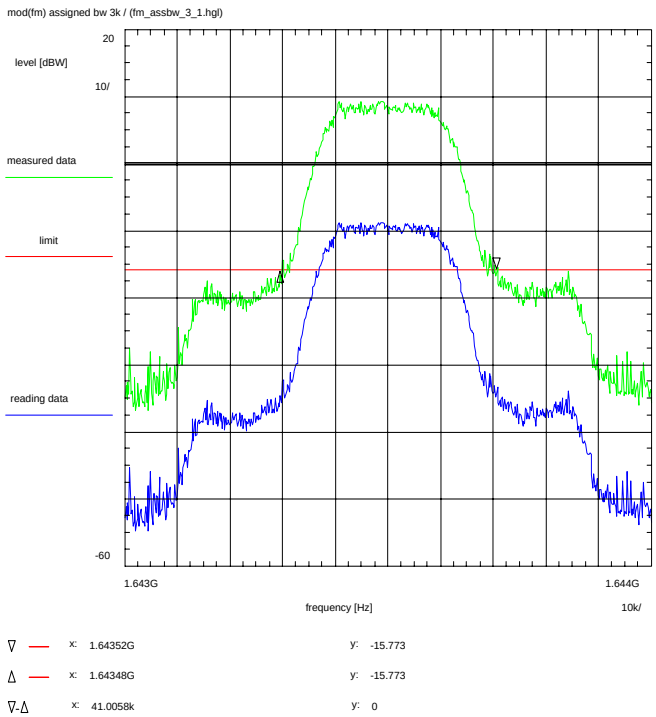
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	12.7	dB

Limit:
no limits defined
The limit line in the plot of -25dBc/4kHz is useful for orientation and corresponds to the restriction for ´Emission limitations´ (see 25.202 f)).

Remarks:
Determination of the ´assigned bandwidth´ at fm:
The measured value is about 71 kHz (delta marker)
Measurement with 10 kHz resolution filter and maximum-hold.

Annex 3: Measurement result no. 10 (61)



Subclause: -/- Function test
Modulated rf-carrier in the middle of the band (fm)
Determination of the ´assigned bandwidth´

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Determination of the ´assigned bandwidth´

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 10:30:47	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.64345	GHz
Stop frequency:	1.64355	GHz
Center frequency:	1.6435	GHz
Frequency span:	100	kHz
Input attenuation:	40	dB
Resolution-BW:	3	kHz
Video-BW:	3	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

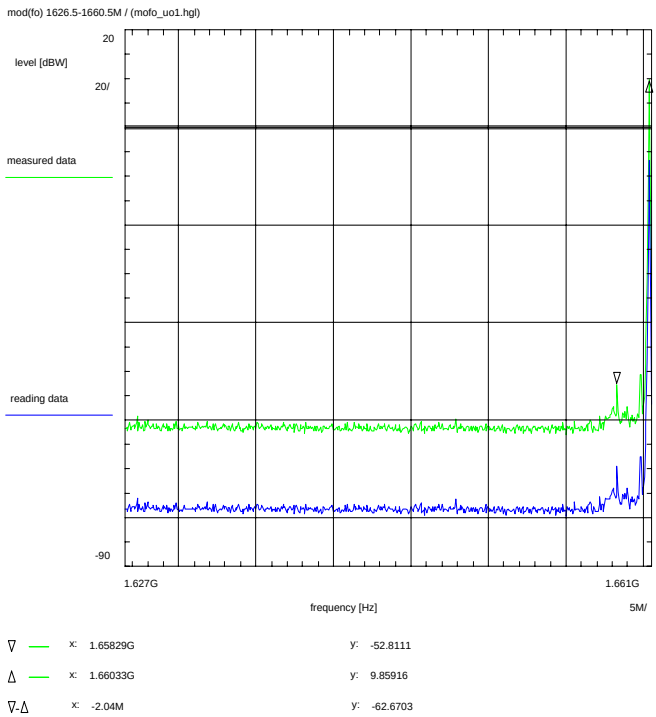
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (3k -> 4k)	+	1.2	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	17.9	dB

Limit:
no limits defined
The limit line in the plot of -25dBc/4kHz is useful for orientation and corresponds to the restriction for ´Emission limitations´ (see 25.202 f)).

Remarks:
Determination of the ´assigned bandwidth´ at fm:
The measured value is about 41 kHz (delta marker)
Measurement with 3 kHz resolution filter and maximum-hold.

Annex 3: Measurement result no. 11 (61)



Subclause: -/- Function test
Modulated rf-carrier at the upper edge of the band (fo)
Measurement within the band

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: measurement for orientation

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 15:08:37	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.6265	GHz
Stop frequency:	1.6605	GHz
Center frequency:	1.6435	GHz
Frequency span:	34	MHz
Input attenuation:	40	dB
Resolution-BW:	30	kHz
Video-BW:	30	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

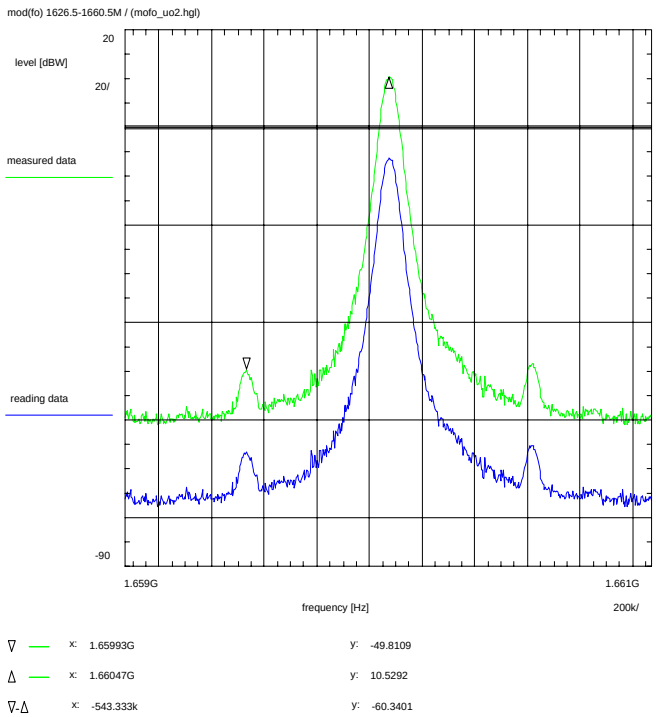
Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	16.7	dB

Limit:
no limits defined

This test serves to verify the general function of the EUT and for orientation regarding to the spurious emissions which are expected within the band, furthermore for comparison of the actual power with the rated value at modulated carrier adjusted as close to the upper edge of the operating frequency band.

Remarks:
Test of general function of the EUT and measurement for orientation

Annex 3: Measurement result no. 12 (61)



Subclause: -/- Function test
Modulated rf-carrier at the upper edge of the band (fo)
Measurement within the band

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: measurement for orientation

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 15:10:44	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.65946875	GHz
Stop frequency:	1.66146875	GHz
Center frequency:	1.66046875	GHz
Frequency span:	2	MHz
Input attenuation:	40	dB
Resolution-BW:	30	kHz
Video-BW:	30	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

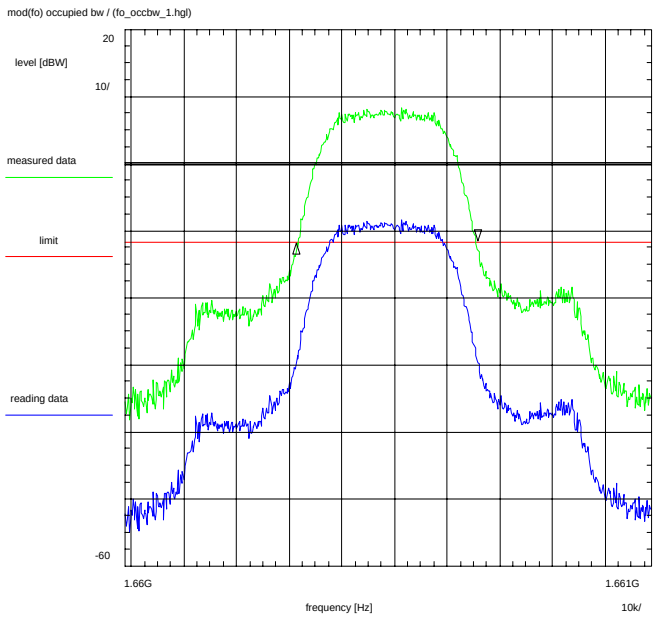
Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	16.7	dB

Limit:
no limits defined

This test serves to verify the general function of the EUT and for orientation regarding to the spurious emissions which are expected within the band, furthermore for comparison of the actual power with the rated value at modulated carrier adjusted as close to the upper edge of the operating frequency band.

Remarks:
Test of general function of the EUT and measurement for orientation

Annex 3: Measurement result no. 13 (61)



Subclause: -/- Function test
Modulated rf-carrier at the upper edge of the band (fo)
Determination of the ´occupied bandwidth´

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Determination of the ´occupied bandwidth´

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 15:22:34	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.66041875	GHz
Stop frequency:	1.66051875	GHz
Center frequency:	1.66046875	GHz
Frequency span:	100	kHz
Input attenuation:	40	dB
Resolution-BW:	3	kHz
Video-BW:	3	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

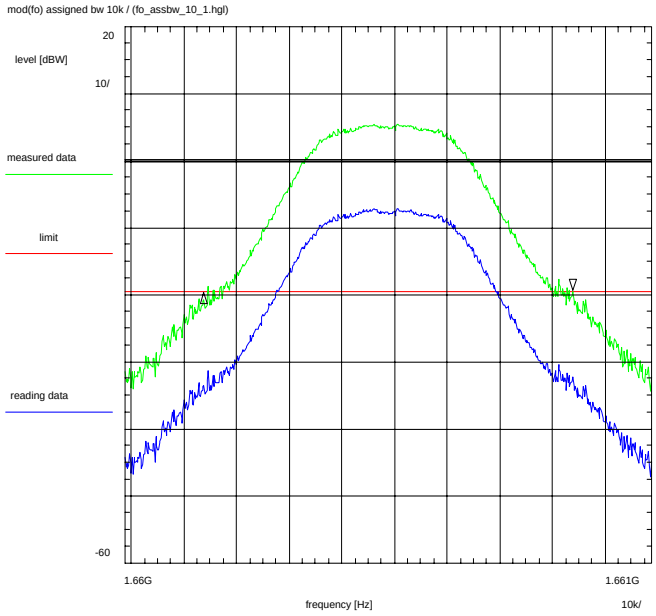
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	16.7	dB

Limit:
The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).
This occupied bandwidth corresponds to the 20 dB-bandwidth.

Remarks:
Determination of the ´occupied bandwidth´ at fo:
The measured value is about 34.5 kHz (delta marker)
Measurement with 3 kHz resolution filter and maximum-hold.

Annex 3: Measurement result no. 14 (61)



Subclause: -/- Function test
Modulated rf-carrier at the upper edge of the band (fo)
Determination of the ´assigned bandwidth´

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Determination of the ´assigned bandwidth´

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 15:25:19	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.66041875	GHz
Stop frequency:	1.66051875	GHz
Center frequency:	1.66046875	GHz
Frequency span:	100	kHz
Input attenuation:	40	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

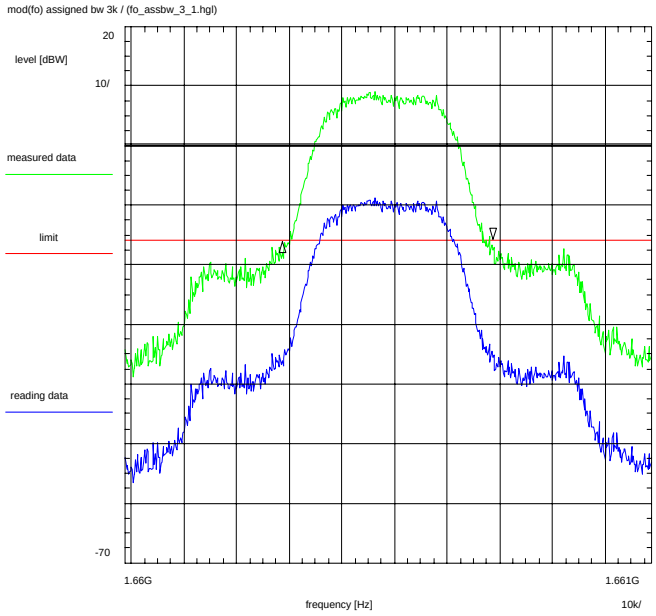
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	12.7	dB

Limit:
no limits defined
The limit line in the plot of -25dBc/4kHz is useful for orientation and corresponds to the restriction for ´Emission limitations´ (see 25.202 f)).

Remarks:
Determination of the ´assigned bandwidth´ at fo:
The measured value is about 70 kHz (delta marker)
Measurement with 10 kHz resolution filter and maximum-hold.

Annex 3: Measurement result no. 15 (61)



Subclause: -/- Function test
Modulated rf-carrier at the upper edge of the band (fo)
Determination of the ´assigned bandwidth´

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Determination of the ´assigned bandwidth´

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 15:28:49	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.66041875	GHz
Stop frequency:	1.66051875	GHz
Center frequency:	1.66046875	GHz
Frequency span:	100	kHz
Input attenuation:	40	dB
Resolution-BW:	3	kHz
Video-BW:	3	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

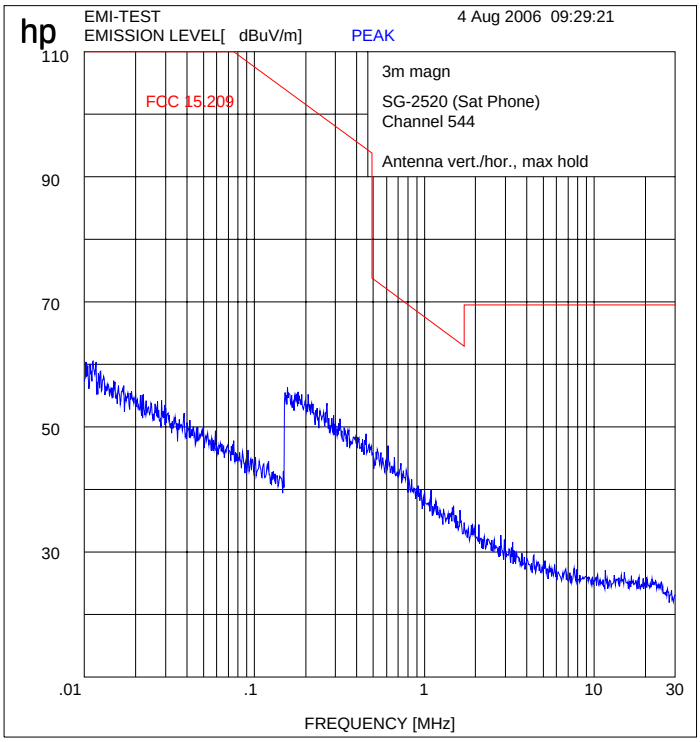
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (3k -> 4k)	+	1.2	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	17.9	dB

Limit:
no limits defined
The limit line in the plot of -25dBc/4kHz is useful for orientation and corresponds to the restriction for ´Emission limitations´ (see 25.202 f)).

Remarks:
Determination of the ´assigned bandwidth´ at fo:
The measured value is about 40 kHz (delta marker)
Measurement with 3 kHz resolution filter and maximum-hold.

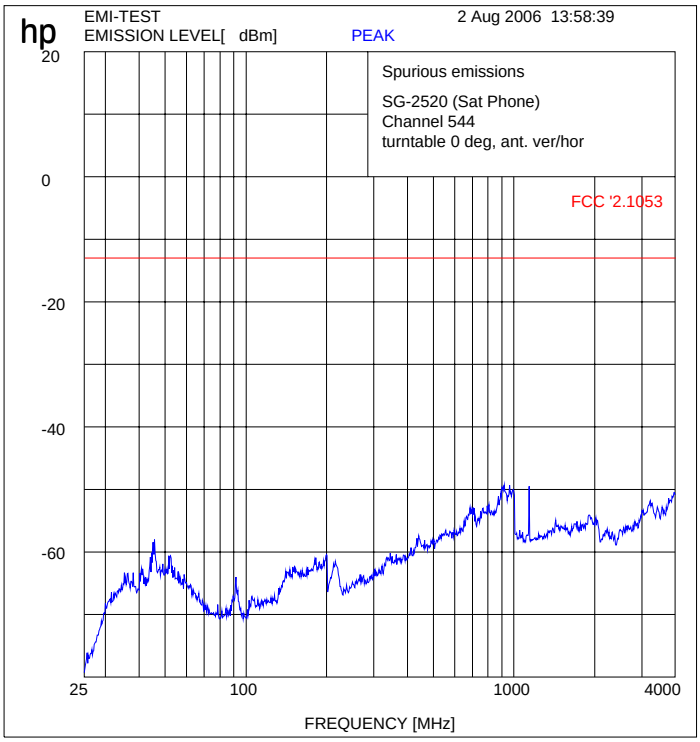
Annex 3: Measurement result no. 16 (61)



-/-

Information on the measurement:

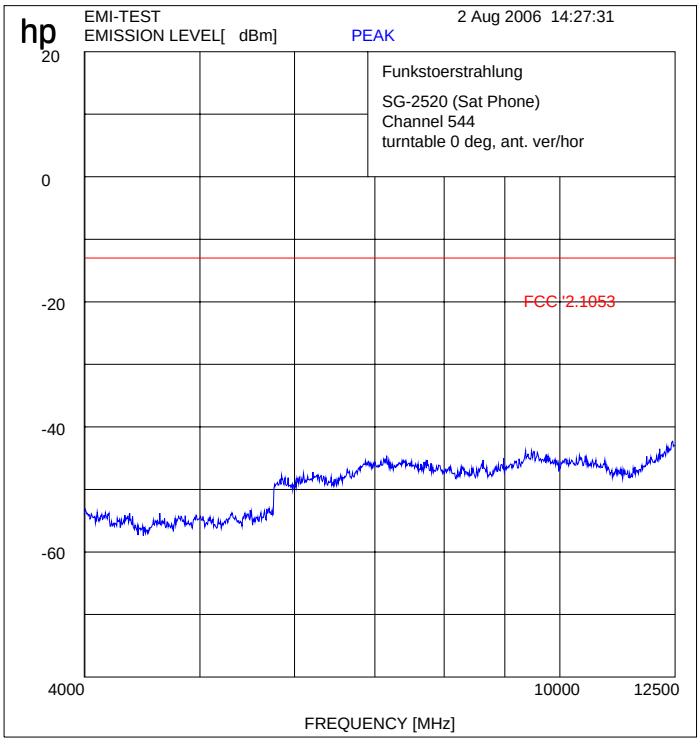
Annex 3: Measurement result no. 17 (61)



-/-

Information on the measurement:

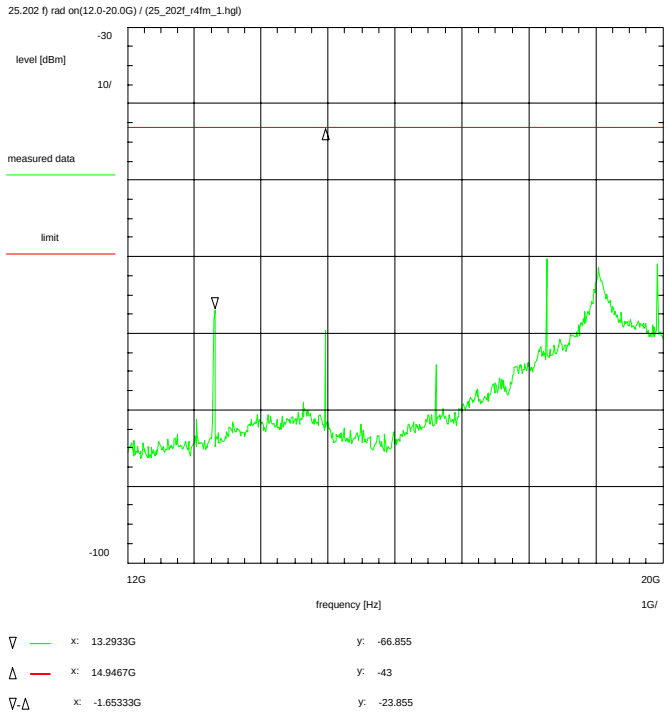
Annex 3: Measurement result no. 18 (61)



-/-

Information on the measurement:

Annex 3: Measurement result no. 19 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations, modulated carrier in the middle of the band
Radiation coming out of DUT-cabinet(s): 12.0 GHz - 20.0 GHz

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 2.3

Test equipment:
see annex 2: 11b, A037, C217, R001, U019, WHPF

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 16:16:42	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	12	GHz
Stop frequency:	20	GHz
Center frequency:	16	GHz
Frequency span:	8	GHz
Input attenuation:	0	dB
Resolution-BW:	100	kHz
Video-BW:	100	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

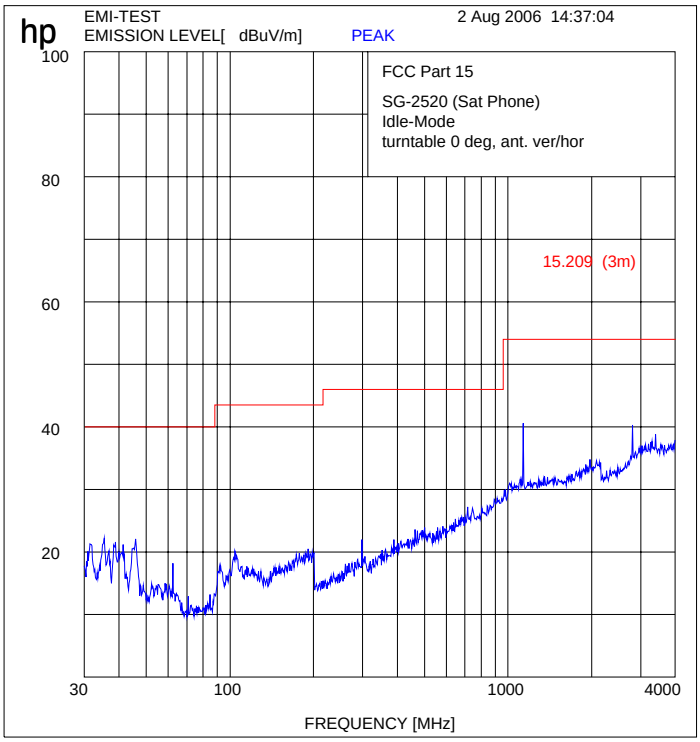
Directional coupler (WHPF)	+	0.8	dB
Coaxial cable (C217)	+	2.3	dB
DUT-Antenna	+	0.0	dBi
Test antenna (A037)	-	12.7	dB
BW correction factor (100k -> 4k)	-	14.0	dB
Atten. between HPA and feedhorn	-	0.0	dB
Freefield attenuation (16.00GHz, 0.5m)	+	50.5	dB
Amplifier (11b)	-	33.5	dB
TOTAL CORRECTION:	-	-6.6	dB

Limit:
Limit acc. to 25.202 f):-43.0+10log(Pmax)dBc/4kHz
This corresponds to -43.0 dBm.

Remarks:
Carrier-on state. Carrier in the middle of the band (fm).
Radiated measurement in 1 m test distance.

The plot shows the 8th, 9th, 10th, 11th and 12th harmonic.

Annex 3: Measurement result no. 20 (61)



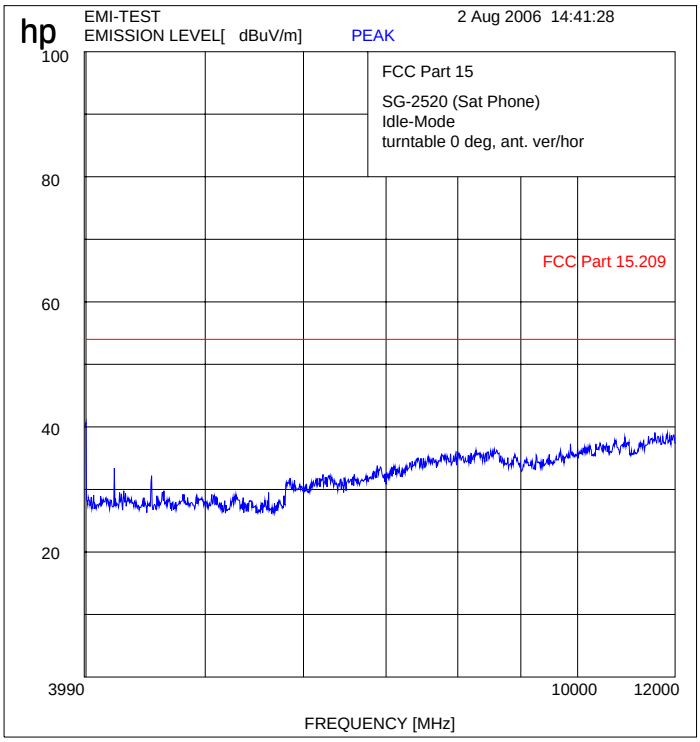
-/-

Information on the measurement:

```
==================================================
EMI-TEST                  2 Aug 2006  14:37:04
==================================================
 1. FCC CFR 47,Part 15J WITHOUT PRESELECTOR
    1.3  FCC Part 15 30 MHz - 4 GHz
==================================================
Peaks above -20 dB of Limit Line #1
  peak criteria = 6 dB

PEAK#   FREQ (MHz)      (dBuV/m)     DELTA
  1       35.42           22.2        -17.8
  2       38.87           21.6        -18.4
  3       45.9            22.1        -17.9
  4     1133.4            40.6        -13.4
```

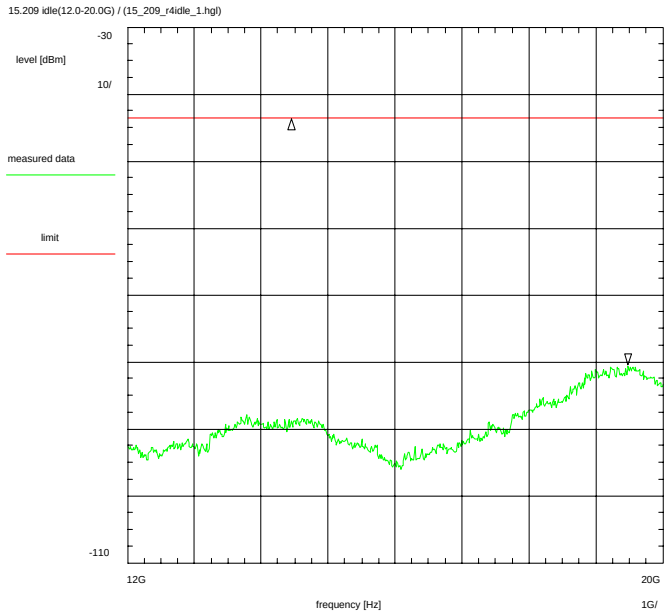
Annex 3: Measurement result no. 21 (61)



-/-

Information on the measurement:

Annex 3: Measurement result no. 22 (61)



Subclause: 15.209 Radiated emissions 12.0 - 20.0 GHz
Idle-mode
Radiation coming out of DUT-cabinet(s): 12.0 GHz - 20.0 GHz

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 2, see section 1.5.2
Idle-Mode

Test setup:
see annex 1: 2.3

Test equipment:
see annex 2: A037, C217, R001, U019

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 16:21:23	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	12	GHz
Stop frequency:	20	GHz
Center frequency:	16	GHz
Frequency span:	8	GHz
Input attenuation:	0	dB
Resolution-BW:	1	MHz
Video-BW:	1	MHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

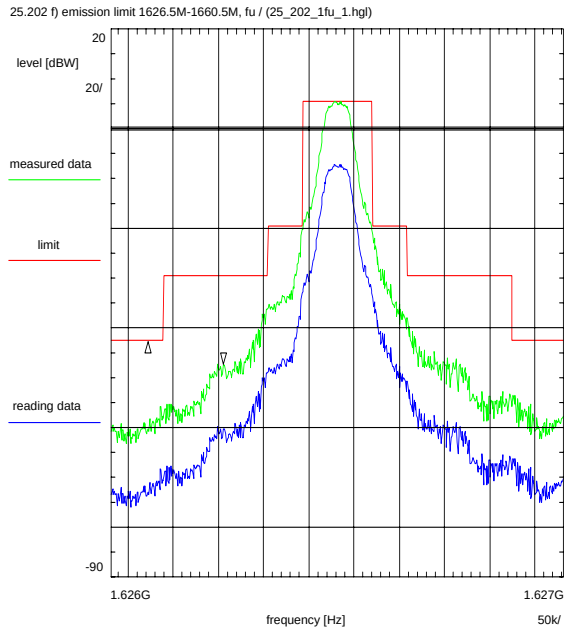
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	2.3	dB
DUT-Antenna	+	0.0	dBi
Test antenna (A037)	-	12.7	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	-	0.0	dB
Freefield attenuation	+	0.0	dB
Distance correction (1m->3m)	-	9.5	dB
TOTAL CORRECTION:	-	-19.9	dB

Limit:
Limit acc. to 15.209: 54.0 dBuv/m
This corresponds to -43.5 dBm in a 3 m test distance.

Remarks:
Idle-mode.

Annex 3: Measurement result no. 23 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: R001

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 13:43:29	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.62628125	GHz
Stop frequency:	1.62678125	GHz
Center frequency:	1.62653125	GHz
Frequency span:	500	kHz
Input attenuation:	40	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

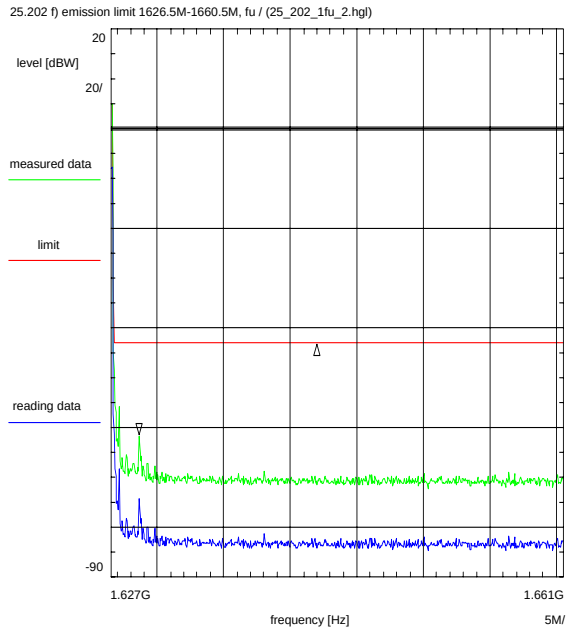
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	12.7	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 24 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: R001

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 13:44:57	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.6265	GHz
Stop frequency:	1.6605	GHz
Center frequency:	1.6435	GHz
Frequency span:	34	MHz
Input attenuation:	40	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

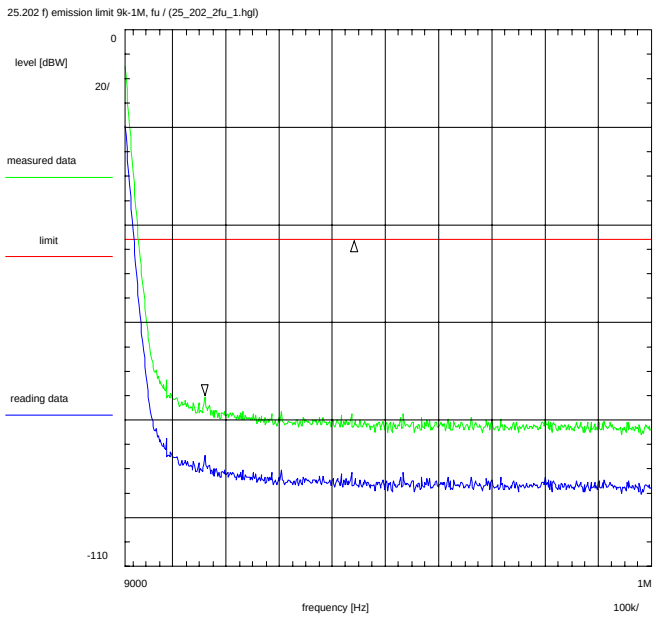
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	12.7	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 25 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 13:46:45	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	9	kHz
Stop frequency:	1	MHz
Center frequency:	504.5	kHz
Frequency span:	991	kHz
Input attenuation:	30	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

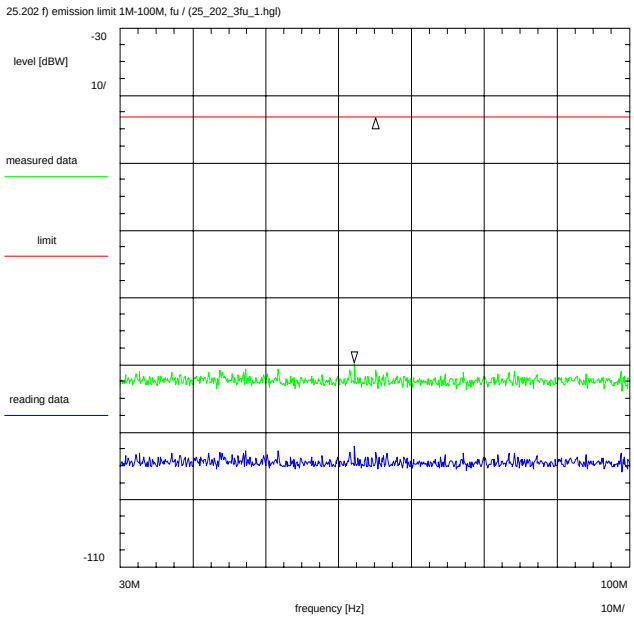
Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.2	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	9.9	dB
TOTAL CORRECTION:	+	12.1	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Rather left the plot shows the zero line of the spectrum analyzer.

Annex 3: Measurement result no. 26 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 13:48:20	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	30	MHz
Stop frequency:	100	MHz
Center frequency:	65	MHz
Frequency span:	70	MHz
Input attenuation:	30	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

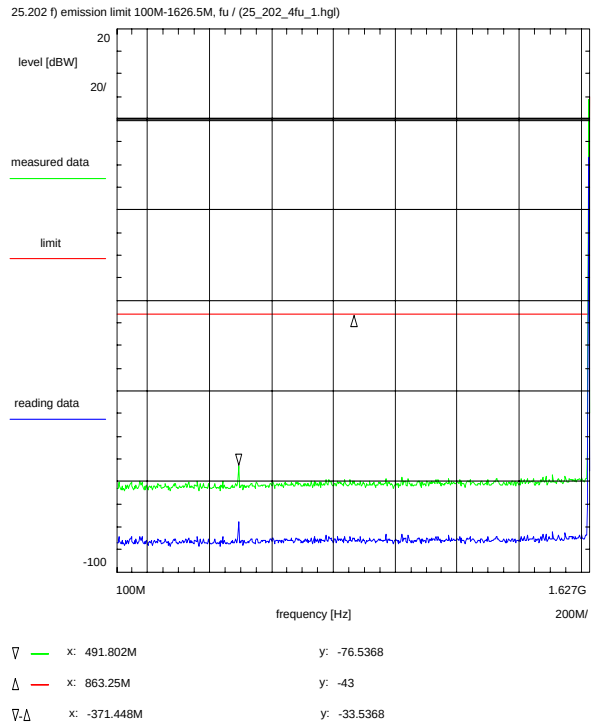
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.2	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	9.9	dB
TOTAL CORRECTION:	+	12.1	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 27 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:
see also next plot

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 13:59:54	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	100	MHz
Stop frequency:	1.6265	GHz
Center frequency:	863.25	MHz
Frequency span:	1.5265	GHz
Input attenuation:	30	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

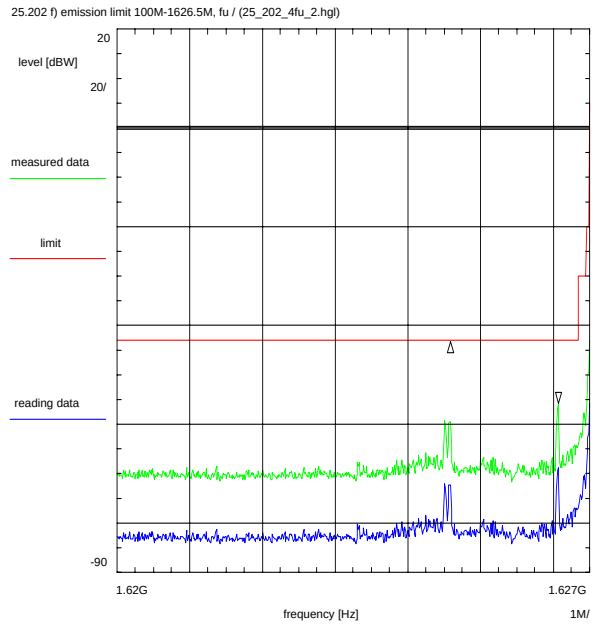
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.2	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	9.9	dB
TOTAL CORRECTION:	+	12.1	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 28 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 14:09:28	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.62	GHz
Stop frequency:	1.6265	GHz
Center frequency:	1.62325	GHz
Frequency span:	6.5	MHz
Input attenuation:	40	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

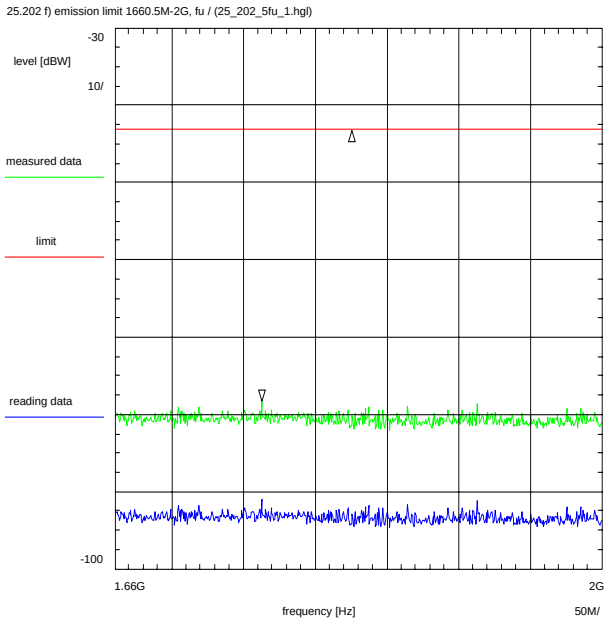
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	12.7	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 29 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 14:11:06	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.66038	GHz
Stop frequency:	1.99988	GHz
Center frequency:	1.83013	GHz
Frequency span:	339.5	MHz
Input attenuation:	30	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

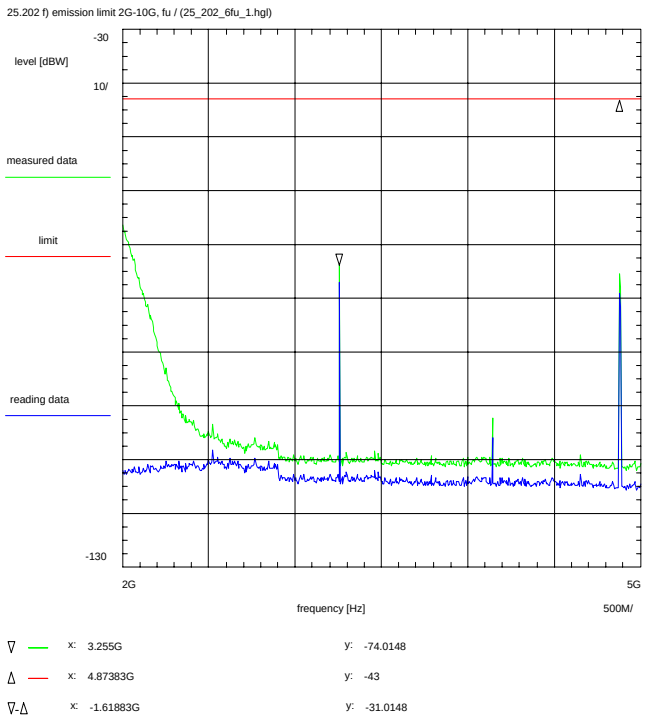
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	12.7	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 30 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1

Test setup:
see annex 1: 1.2ghij

Test equipment:
see annex 2: C217, R001, U214, WHPF

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 14:26:50	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	2	GHz
Stop frequency:	5	GHz
Center frequency:	3.5	GHz
Frequency span:	3	GHz
Input attenuation:	0	dB
Resolution-BW:	100	kHz
Video-BW:	100	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

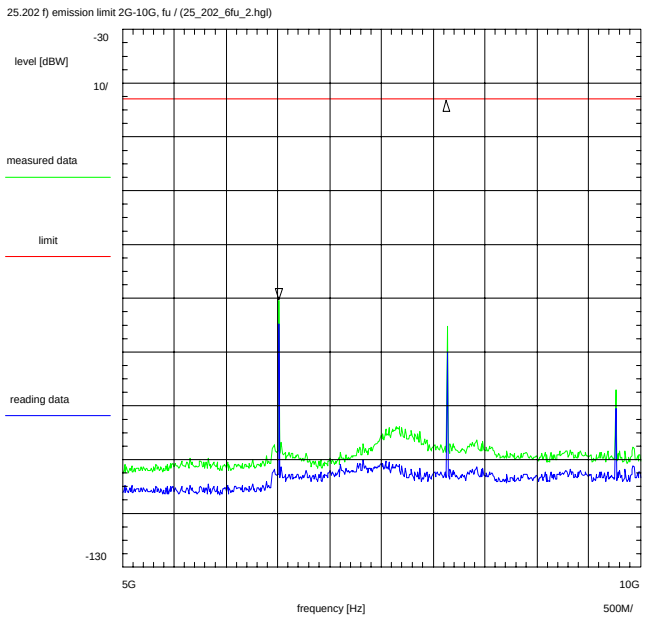
Directional coupler (WHPF)	+	3.6	dB
Coaxial cable (C217)	+	1.0	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (100k -> 4k)	-	14.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	6.6	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Rather left the plot shows the frequency response of the high pass filter.
The plot shows the 2nd and 3rd harmonic.

Annex 3: Measurement result no. 31 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1

Test setup:
see annex 1: 1.2ghij

Test equipment:
see annex 2: C217, R001, U214, WHPF

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 14:43:22	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	5	GHz
Stop frequency:	10	GHz
Center frequency:	7.5	GHz
Frequency span:	5	GHz
Input attenuation:	0	dB
Resolution-BW:	100	kHz
Video-BW:	100	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

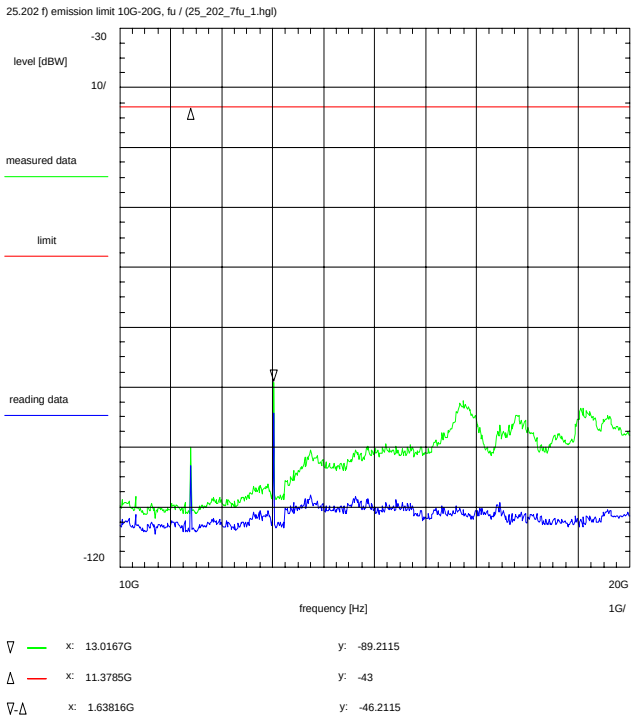
Directional coupler (WHPF)	+	0.3	dB
Coaxial cable (C217)	+	1.5	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (100k -> 4k)	-	14.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.4	dB
TOTAL CORRECTION:	+	4.2	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
For EIRP calculation:
´worst-case´ = maximum antenna gain

The plot shows the 4th, 5th and 6th harmonic.

Annex 3: Measurement result no. 32 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1

Test setup:
see annex 1: 1.2ghij

Test equipment:
see annex 2: C217, R001, U214, WHPF

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 14:48:10	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	10	GHz
Stop frequency:	20	GHz
Center frequency:	15	GHz
Frequency span:	10	GHz
Input attenuation:	0	dB
Resolution-BW:	100	kHz
Video-BW:	100	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

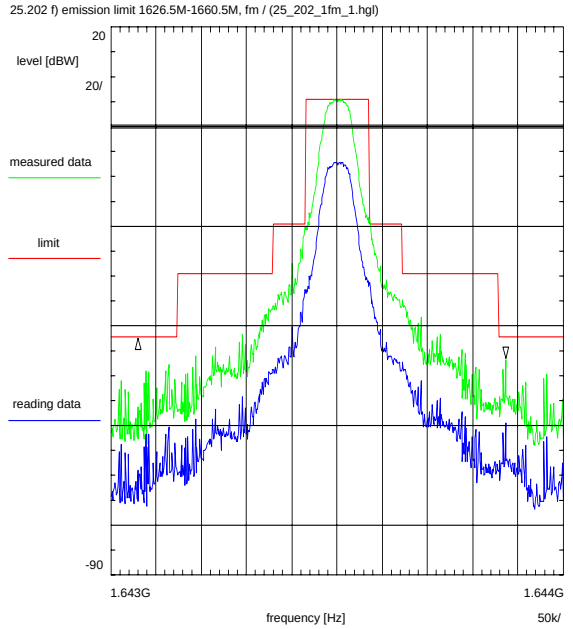
Directional coupler (WHPF)	+	0.7	dB
Coaxial cable (C217)	+	2.2	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (100k -> 4k)	-	14.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	14.2	dB
TOTAL CORRECTION:	+	9.1	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
For EIRP calculation:
´worst-case´ = maximum antenna gain

The plot shows the 7th and 8th harmonic.

Annex 3: Measurement result no. 33 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 10:34:33	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.64325	GHz
Stop frequency:	1.64375	GHz
Center frequency:	1.6435	GHz
Frequency span:	500	kHz
Input attenuation:	40	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

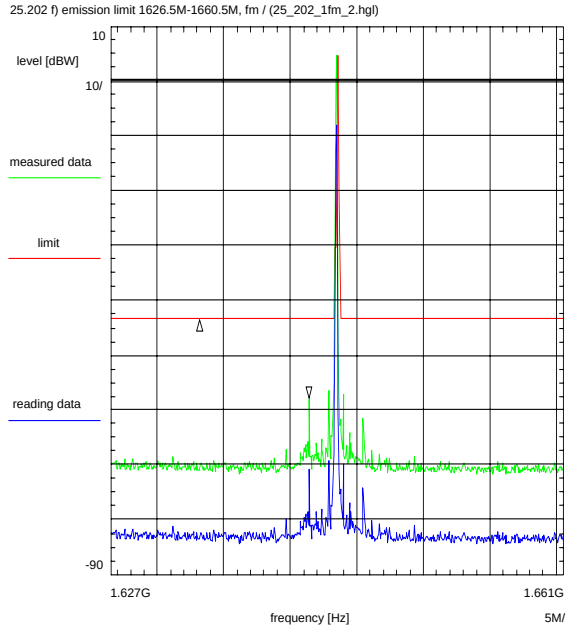
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	12.7	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 34 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 10:35:59	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.6265	GHz
Stop frequency:	1.6605	GHz
Center frequency:	1.6435	GHz
Frequency span:	34	MHz
Input attenuation:	40	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

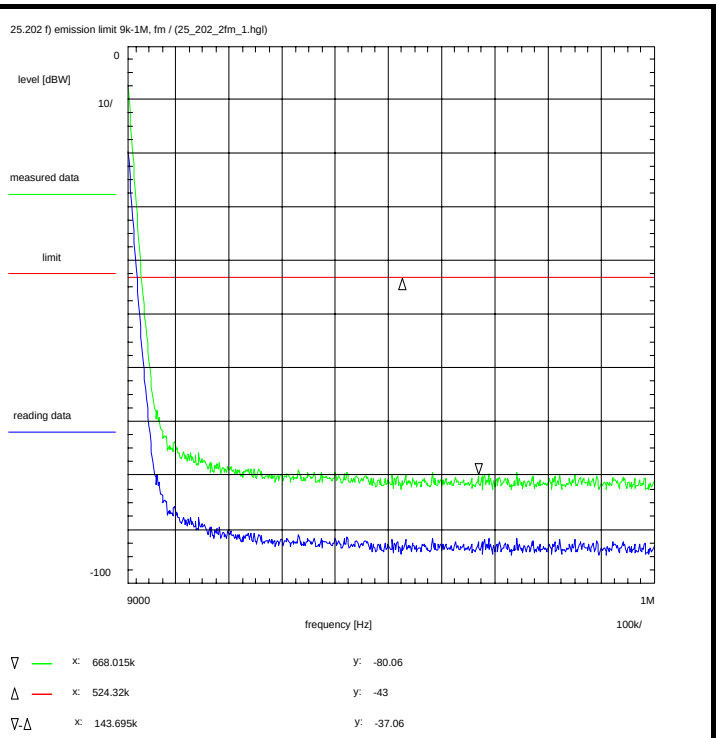
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	12.7	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 35 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 10:38:25	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	9	kHz
Stop frequency:	1	MHz
Center frequency:	504.5	kHz
Frequency span:	991	kHz
Input attenuation:	30	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

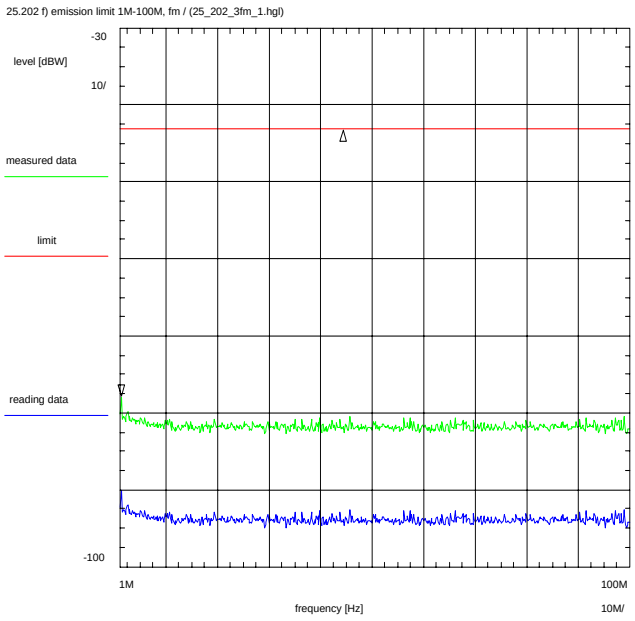
Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.2	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	9.9	dB
TOTAL CORRECTION:	+	12.1	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Rather left the plot shows the zero line of the spectrum analyzer.

Annex 3: Measurement result no. 36 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 10:43:09	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1	MHz
Stop frequency:	100	MHz
Center frequency:	50.5	MHz
Frequency span:	99	MHz
Input attenuation:	30	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

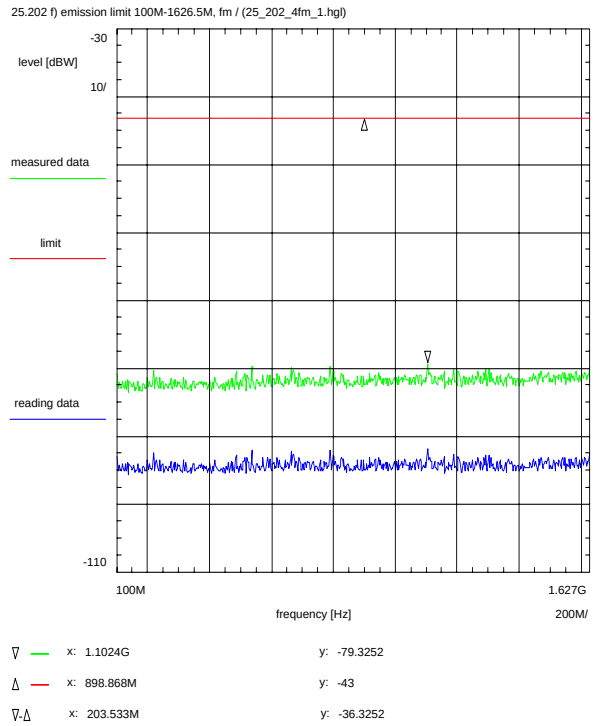
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.2	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	9.9	dB
TOTAL CORRECTION:	+	12.1	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 37 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 10:53:15	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	100	MHz
Stop frequency:	1.6265	GHz
Center frequency:	863.25	MHz
Frequency span:	1.5265	GHz
Input attenuation:	30	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

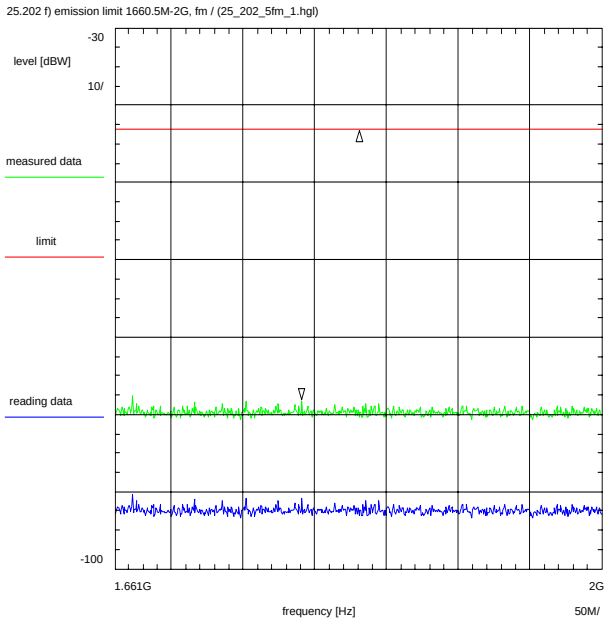
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.2	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	9.9	dB
TOTAL CORRECTION:	+	12.1	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 38 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 11:04:08	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.6605	GHz
Stop frequency:	2	GHz
Center frequency:	1.83025	GHz
Frequency span:	339.5	MHz
Input attenuation:	30	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

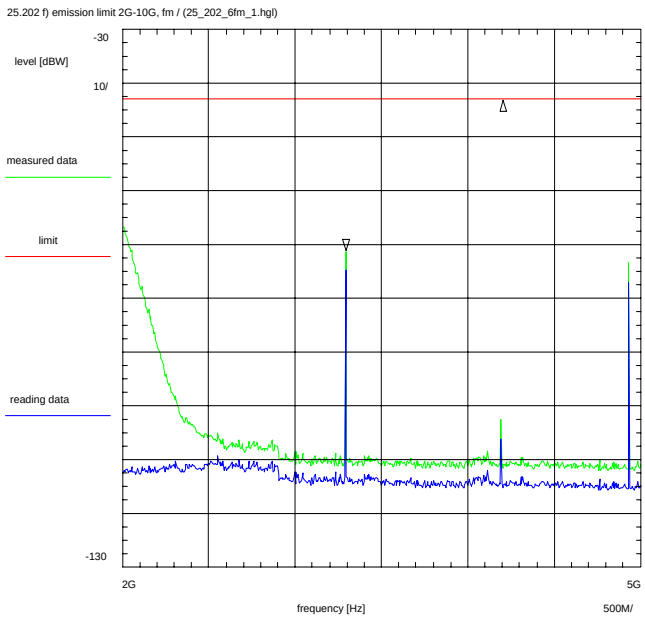
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.2	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	9.9	dB
TOTAL CORRECTION:	+	12.1	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 39 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghij

Test equipment:
see annex 2: C217, R001, U214, WHPF

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 11:13:58	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	2	GHz
Stop frequency:	5	GHz
Center frequency:	3.5	GHz
Frequency span:	3	GHz
Input attenuation:	0	dB
Resolution-BW:	100	kHz
Video-BW:	100	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

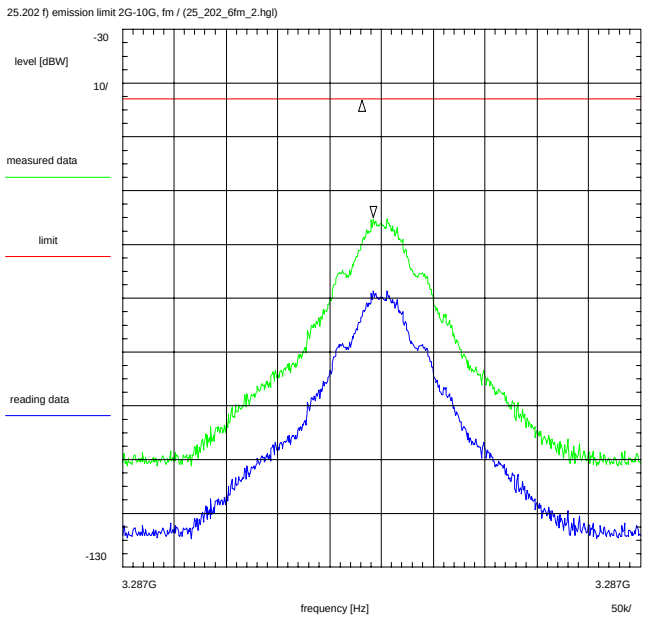
Directional coupler (WHPF)	+	3.6	dB
Coaxial cable (C217)	+	1.0	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (100k -> 4k)	-	14.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	6.6	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
´worst-case´ = maximum antenna gain

The plot shows the 2nd and 3rd harmonic (and a spurious in between).

Annex 3: Measurement result no. 40 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghij

Test equipment:
see annex 2: C217, R001, U214, WHPF

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 11:20:07	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	3.28675	GHz
Stop frequency:	3.28725	GHz
Center frequency:	3.287	GHz
Frequency span:	500	kHz
Input attenuation:	0	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

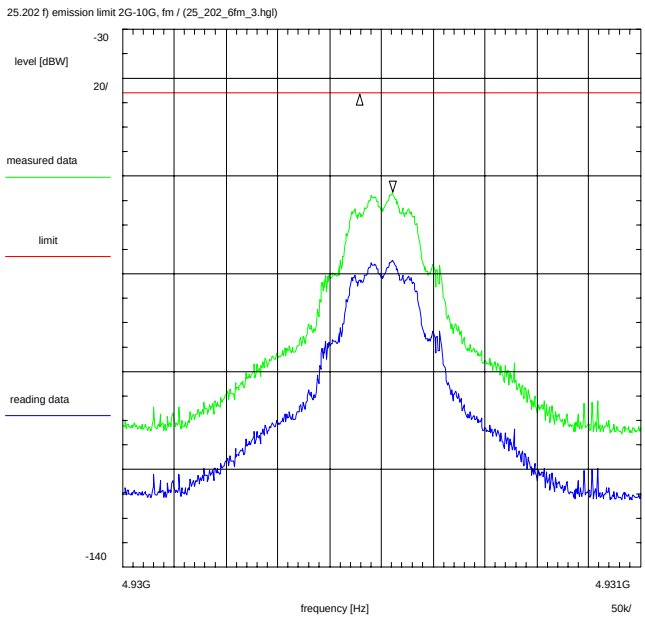
Directional coupler (WHPF)	+	0.5	dB
Coaxial cable (C217)	+	1.0	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	13.5	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
´worst-case´ = maximum antenna gain

The plot shows the 2nd harmonic.

Annex 3: Measurement result no. 41 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghij

Test equipment:
see annex 2: C217, R001, U214, WHPF

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 11:21:34	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	4.93025	GHz
Stop frequency:	4.93075	GHz
Center frequency:	4.9305	GHz
Frequency span:	500	kHz
Input attenuation:	0	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

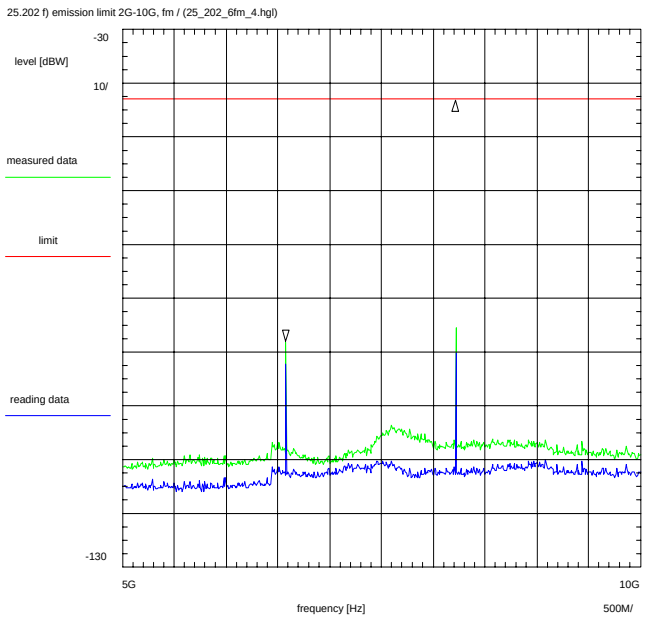
Directional coupler (WHPF)	+	0.3	dB
Coaxial cable (C217)	+	1.2	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.2	dB
TOTAL CORRECTION:	+	13.7	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
´worst-case´ = maximum antenna gain

The plot shows the 3rd harmonic.

Annex 3: Measurement result no. 42 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghij

Test equipment:
see annex 2: C217, R001, U214, WHPF

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 11:39:50	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	5	GHz
Stop frequency:	10	GHz
Center frequency:	7.5	GHz
Frequency span:	5	GHz
Input attenuation:	0	dB
Resolution-BW:	100	kHz
Video-BW:	100	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

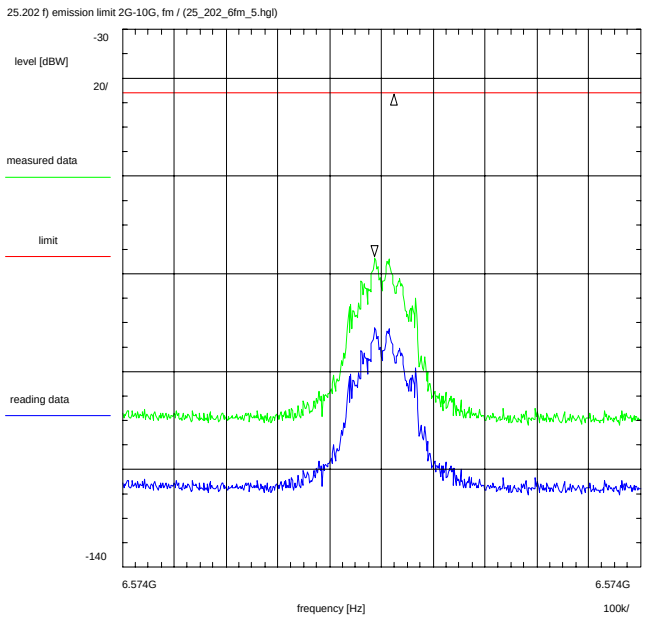
Directional coupler (WHPF)	+	0.3	dB
Coaxial cable (C217)	+	1.5	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (100k -> 4k)	-	14.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.4	dB
TOTAL CORRECTION:	+	4.2	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
´worst-case´ = maximum antenna gain

The plot shows the 4th and 5th harmonic.

Annex 3: Measurement result no. 43 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghij

Test equipment:
see annex 2: C217, R001, U214, WHPF

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 11:41:00	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	6.5735	GHz
Stop frequency:	6.5745	GHz
Center frequency:	6.574	GHz
Frequency span:	1	MHz
Input attenuation:	0	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

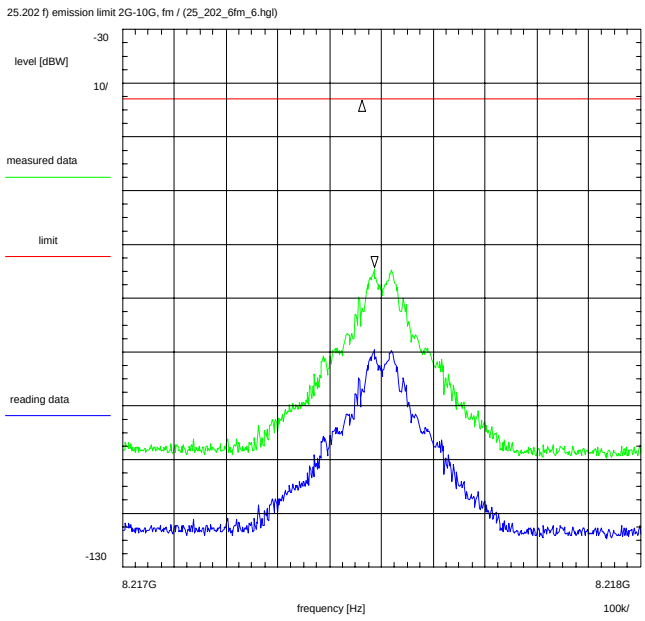
Directional coupler (WHPF)	+	0.2	dB
Coaxial cable (C217)	+	1.4	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.7	dB
TOTAL CORRECTION:	+	14.3	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
´worst-case´ = maximum antenna gain

The plot shows the 4th harmonic.

Annex 3: Measurement result no. 44 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghij

Test equipment:
see annex 2: C217, R001, U214, WHPF

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 11:42:22	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	8.217	GHz
Stop frequency:	8.218	GHz
Center frequency:	8.21750	GHz
Frequency span:	1	MHz
Input attenuation:	0	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

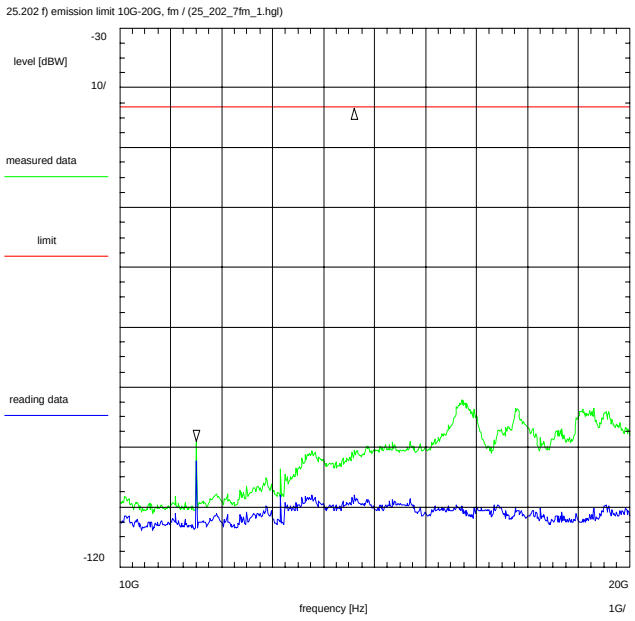
Directional coupler (WHPF)	+	0.4	dB
Coaxial cable (C217)	+	1.6	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.9	dB
TOTAL CORRECTION:	+	14.9	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
´worst-case´ = maximum antenna gain

The plot shows the 5th harmonic.

Annex 3: Measurement result no. 45 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghij

Test equipment:
see annex 2: C217, R001, U214, WHPF

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 11:58:25	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	10	GHz
Stop frequency:	20	GHz
Center frequency:	15	GHz
Frequency span:	10	GHz
Input attenuation:	0	dB
Resolution-BW:	100	kHz
Video-BW:	100	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

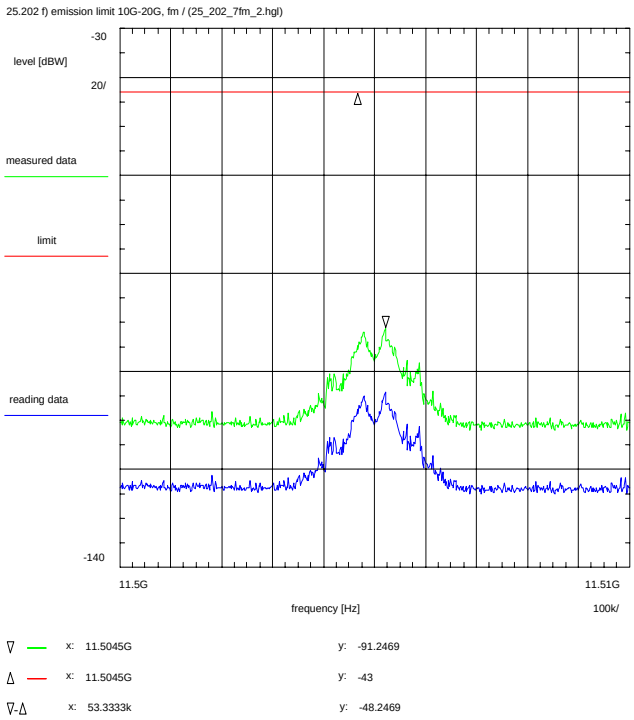
Directional coupler (WHPF)	+	0.7	dB
Coaxial cable (C217)	+	2.2	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (100k -> 4k)	-	14.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	14.2	dB
TOTAL CORRECTION:	+	9.1	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
´worst-case´ = maximum antenna gain

The plot shows the 7th harmonic.

Annex 3: Measurement result no. 46 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2ghij

Test equipment:
see annex 2: C217, R001, U214, WHPF

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 12:00:08	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	55	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	11.504	GHz
Stop frequency:	11.505	GHz
Center frequency:	11.5045	GHz
Frequency span:	1	MHz
Input attenuation:	0	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

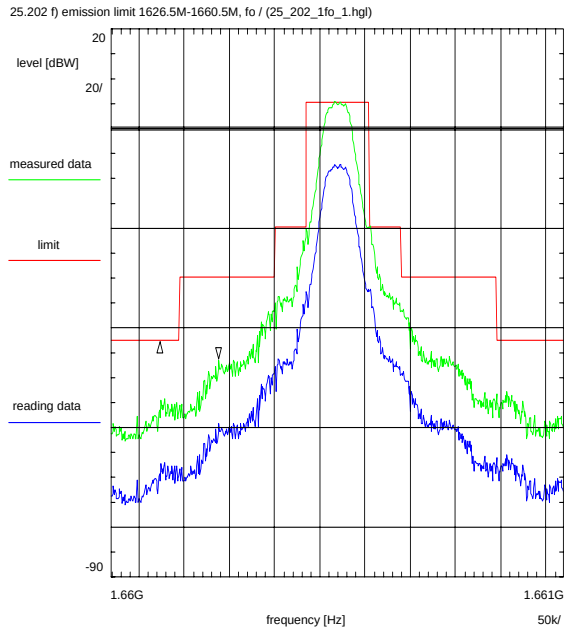
Directional coupler (WHPF)	+	0.2	dB
Coaxial cable (C217)	+	1.9	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	9.0	dB
TOTAL CORRECTION:	+	13.1	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
´worst-case´ = maximum antenna gain

The plot shows the 7th harmonic.

Annex 3: Measurement result no. 47 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 15:32:22	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.66021875	GHz
Stop frequency:	1.66071875	GHz
Center frequency:	1.66046875	GHz
Frequency span:	500	kHz
Input attenuation:	40	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

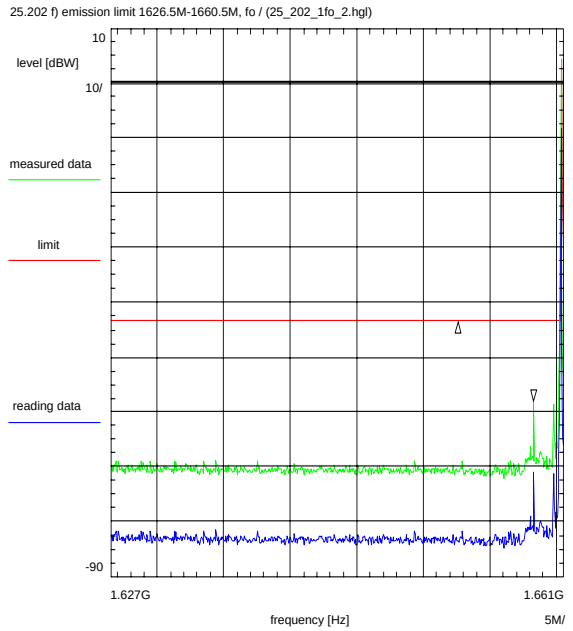
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	12.7	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 48 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 15:34:26	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.6265	GHz
Stop frequency:	1.6605	GHz
Center frequency:	1.6435	GHz
Frequency span:	34	MHz
Input attenuation:	40	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

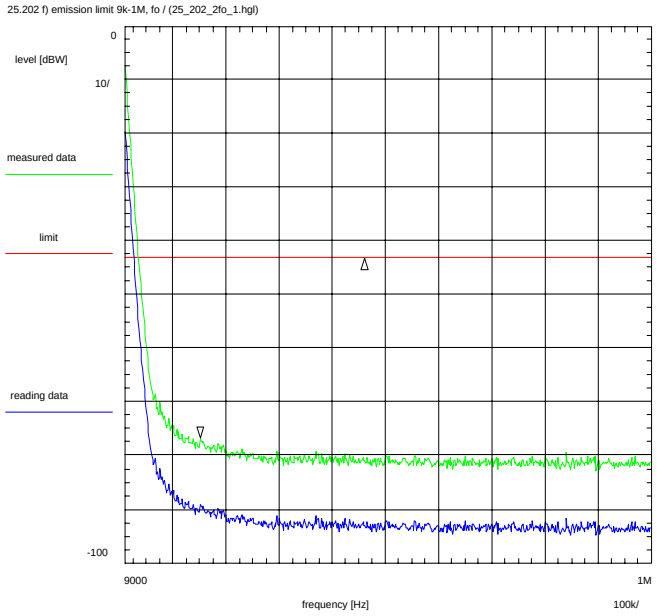
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	12.7	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 49 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 15:37:02	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	9	kHz
Stop frequency:	1	MHz
Center frequency:	504.5	kHz
Frequency span:	991	kHz
Input attenuation:	30	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

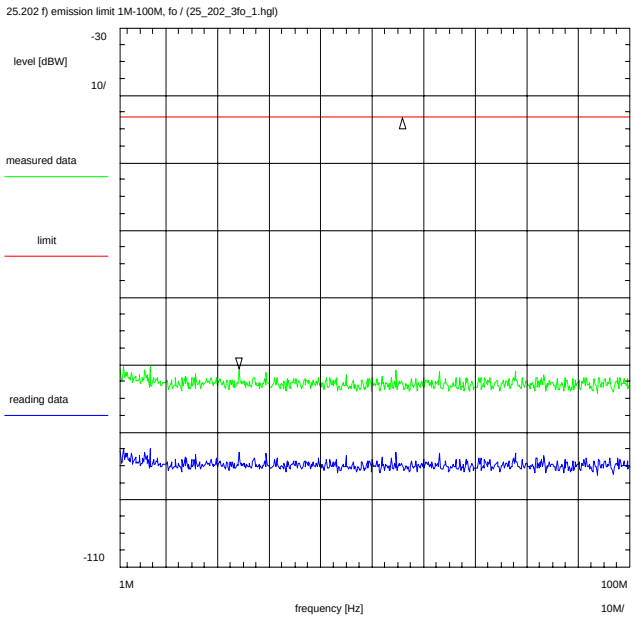
Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.2	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	9.9	dB
TOTAL CORRECTION:	+	12.1	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Rather left the plot shows the zero line of the spectrum analyzer.

Annex 3: Measurement result no. 50 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 15:39:24	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1	MHz
Stop frequency:	100	MHz
Center frequency:	50.5	MHz
Frequency span:	99	MHz
Input attenuation:	30	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

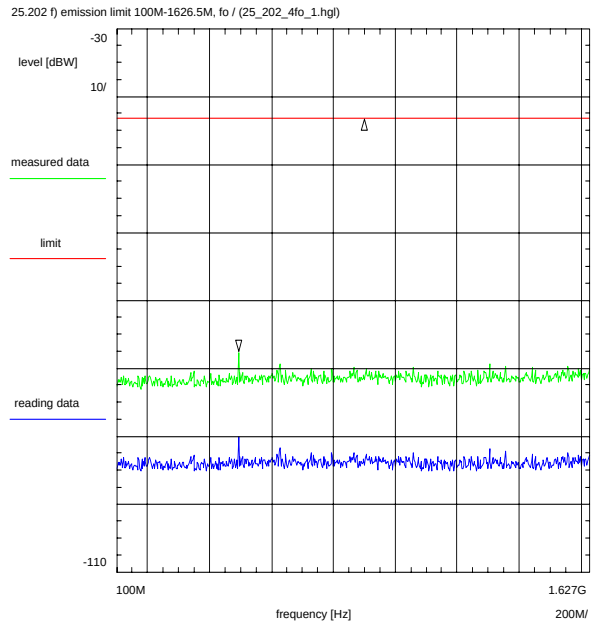
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.2	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	9.9	dB
TOTAL CORRECTION:	+	12.1	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 51 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 15:41:37	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	100	MHz
Stop frequency:	1.6265	GHz
Center frequency:	863.25	MHz
Frequency span:	1.5265	GHz
Input attenuation:	30	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

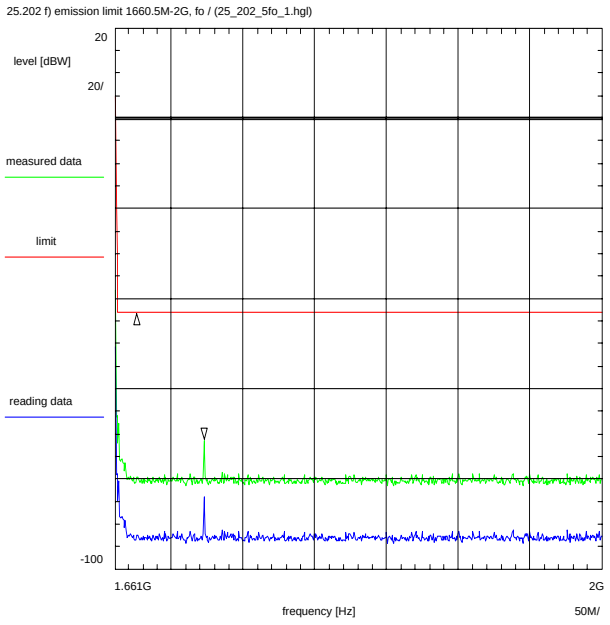
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.5	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	9.9	dB
TOTAL CORRECTION:	+	12.4	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 52 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:
see also next plot

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 15:43:19	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.6605	GHz
Stop frequency:	2	GHz
Center frequency:	1.83025	GHz
Frequency span:	339.5	MHz
Input attenuation:	30	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

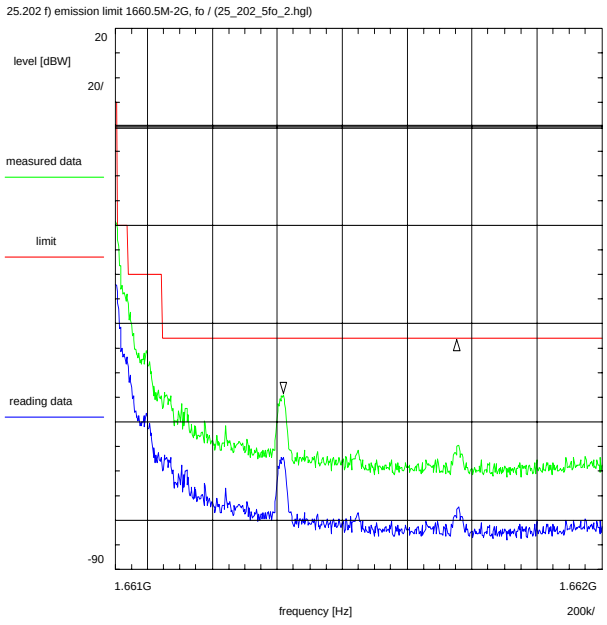
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	12.7	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 53 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 1.2ghj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 15:47:48	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.6605	GHz
Stop frequency:	1.662	GHz
Center frequency:	1.66125	GHz
Frequency span:	1.5	MHz
Input attenuation:	40	dB
Resolution-BW:	10	kHz
Video-BW:	10	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

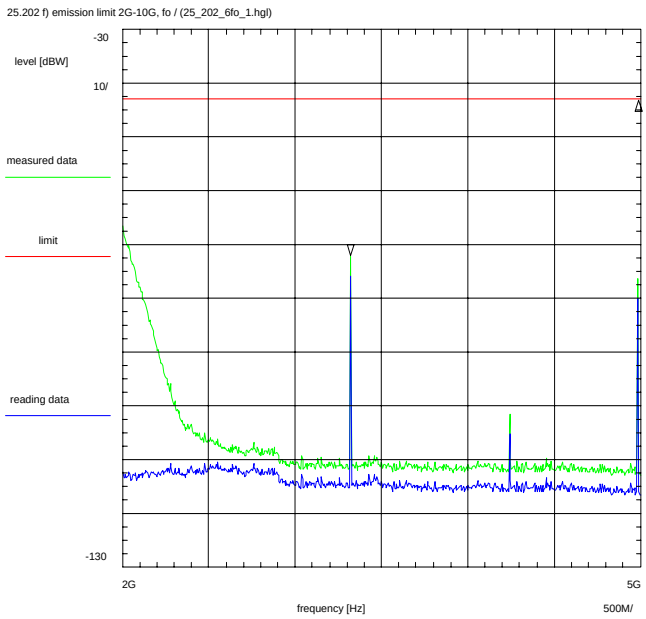
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	12.7	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Annex 3: Measurement result no. 54 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 1.2ghij

Test equipment:
see annex 2: C217, R001, U214, WHPF

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 15:51:32	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	2	GHz
Stop frequency:	5	GHz
Center frequency:	3.5	GHz
Frequency span:	3	GHz
Input attenuation:	0	dB
Resolution-BW:	100	kHz
Video-BW:	100	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

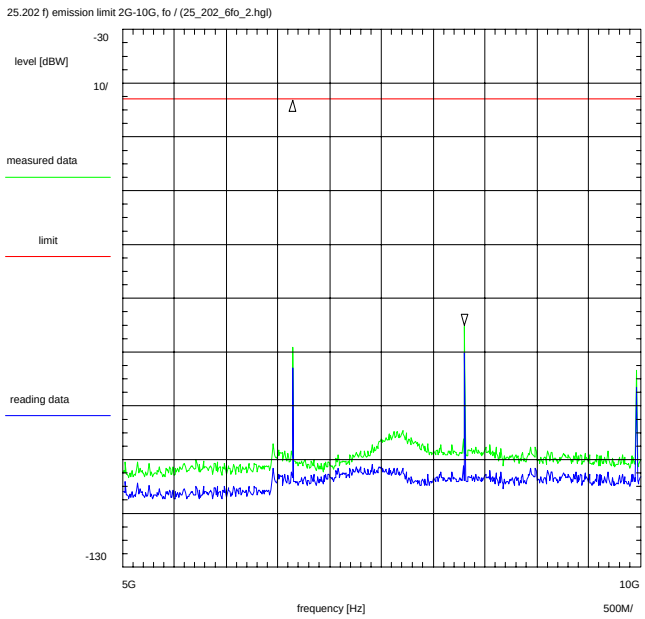
Directional coupler (WHPF)	+	3.6	dB
Coaxial cable (C217)	+	1.0	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (100k -> 4k)	-	14.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	6.6	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Rather left the plot shows the frequency response of the high pass filter.
The plot shows the 2nd and 3rd harmonic.

Annex 3: Measurement result no. 55 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 1.2ghij

Test equipment:
see annex 2: C217, R001, U214, WHPF

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 15:53:24	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	5	GHz
Stop frequency:	10	GHz
Center frequency:	7.5	GHz
Frequency span:	5	GHz
Input attenuation:	0	dB
Resolution-BW:	100	kHz
Video-BW:	100	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

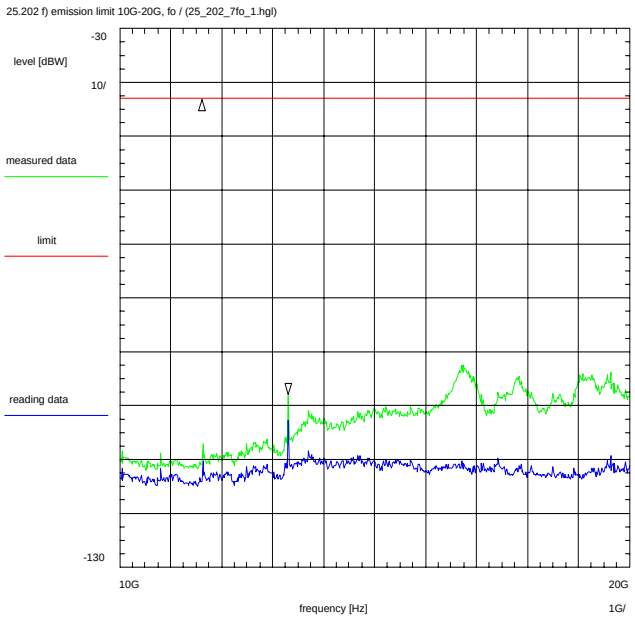
Directional coupler (WHPF)	+	0.3	dB
Coaxial cable (C217)	+	1.5	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (100k -> 4k)	-	14.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.4	dB
TOTAL CORRECTION:	+	4.2	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

The plot shows the 4th, 5th and 6th harmonic.

Annex 3: Measurement result no. 56 (61)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 1.2ghij

Test equipment:
see annex 2: C217, R001, U214, WHPF

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 15:55:16	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	10	GHz
Stop frequency:	20	GHz
Center frequency:	15	GHz
Frequency span:	10	GHz
Input attenuation:	0	dB
Resolution-BW:	100	kHz
Video-BW:	100	kHz
Video-Average:	1	sweep(s) (>1)
Detector-Mode:	2	Pos Peak (Maximum-Hold)

Correction (average):

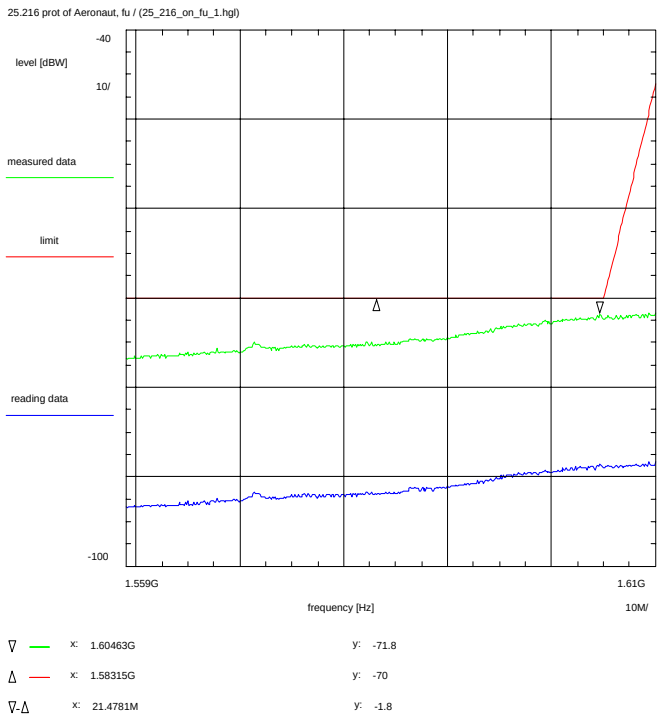
Directional coupler (WHPF)	+	0.7	dB
Coaxial cable (C217)	+	2.2	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor (100k -> 4k)	-	14.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	14.2	dB
TOTAL CORRECTION:	+	9.1	dB

Limit:
Limit acc. to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw:-(43+10log(Pmax))dBc/4kHz

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

The plot shows the 7th and 8th harmonic.

Annex 3: Measurement result no. 57 (61)



Subclause: 25.216 Limits on emissions from mobile earth stations for protection of aeronautical radionavigation-satellite service

Carrier-on state, modulated carrier at the lower edge of the band (fu)
Conducted measurement at the antenna-connector

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1

Test setup:
see annex 1: 1.2hgj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 16:25:31	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.559	GHz
Stop frequency:	1.61	GHz
Center frequency:	1.5845	GHz
Frequency span:	51	MHz
Input attenuation:	20	dB
Resolution-BW:	1	MHz
Video-BW:	1	MHz
Video-Average:	100	sweep(s) (>1)
Detector-Mode:	1	Sample (VidAvg / VidBW<300Hz)

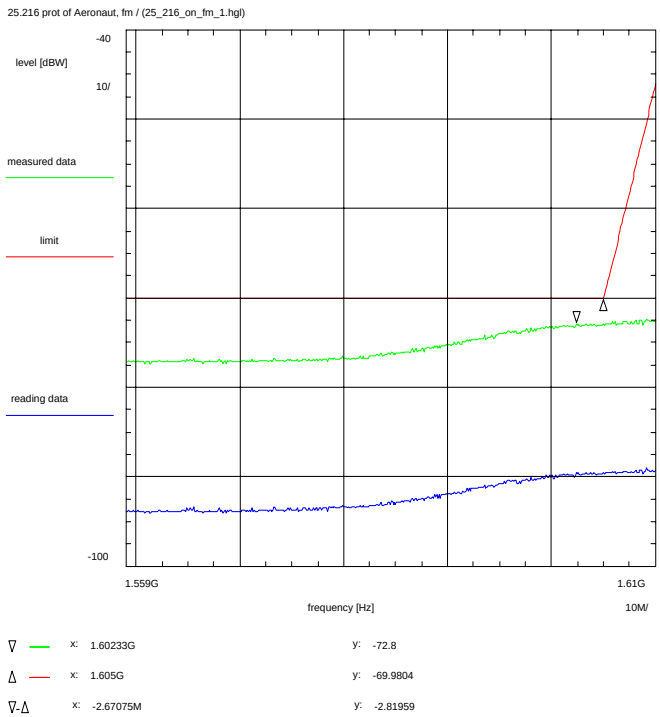
Correction (average):

Directional coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	16.7	dB

Limit:
Limits acc. to 25.216 c) f) h):
1559.0 - 1605.0 MHz: -70dBW/1MHz
1605.0 - 1610.0 MHz:-70 to -46dBW/1MHz
(linearly interpolated)
The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-on state shall not exceed the limits above.

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
For EIRP calculation:
´worst-case´ = nominal on-axis antenna gain at fu
Measurement with 1 MHz resolution/video filter and noise averaging.

Annex 3: Measurement result no. 58 (61)



Subclause: 25.216 Limits on emissions from mobile earth stations for protection of aeronautical radionavigation-satellite service

Carrier-on state, modulated carrier in the middle of the band (fm)
Conducted measurement at the antenna-connector

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 544

Test setup:
see annex 1: 1.2hgj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 16:32:58	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.559	GHz
Stop frequency:	1.61	GHz
Center frequency:	1.5845	GHz
Frequency span:	51	MHz
Input attenuation:	20	dB
Resolution-BW:	1	MHz
Video-BW:	1	MHz
Video-Average:	100	sweep(s) (>1)
Detector-Mode:	1	Sample (VidAvg / VidBW<300Hz)

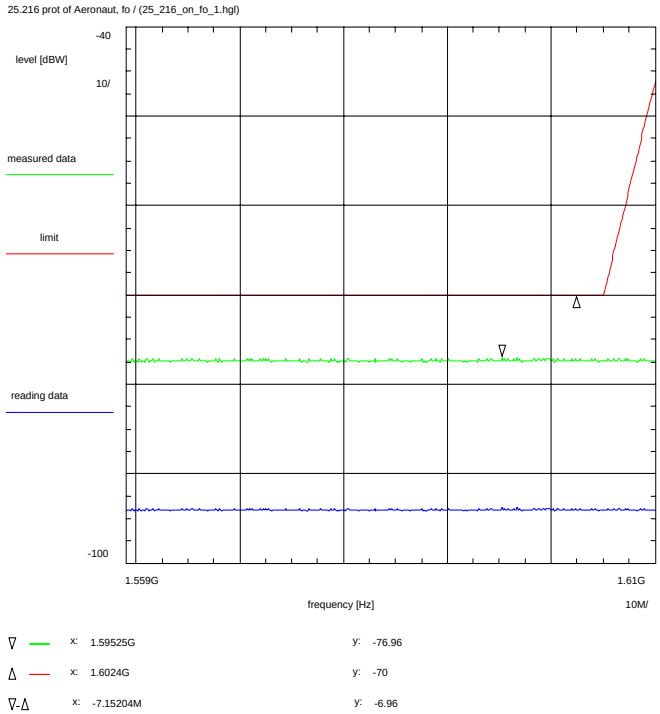
Correction (average):

Directional Coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	16.7	dB

Limit:
Limits acc. to 25.216 c) f) h):
1559.0 - 1605.0 MHz: -70dBW/1MHz
1605.0 - 1610.0 MHz:-70 to -46dBW/1MHz
(linearly interpolated)
The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-on state shall not exceed the limits above.

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
´worst-case´ = nominal on-axis antenna gain at fm
Measurement with 1 MHz resolution/video filter and noise averaging.

Annex 3: Measurement result no. 59 (61)



Subclause: 25.216 Limits on emissions from mobile earth stations for protection of aeronautical radionavigation-satellite service

Carrier-on state, modulated carrier at the upper edge of the band (fo)
Conducted measurement at the antenna-connector

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, see section 1.5.2
CH 1087

Test setup:
see annex 1: 1.2hgj

Test equipment:
see annex 2: C217, R001, U214

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 16:38:58	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.559	GHz
Stop frequency:	1.61	GHz
Center frequency:	1.5845	GHz
Frequency span:	51	MHz
Input attenuation:	20	dB
Resolution-BW:	1	MHz
Video-BW:	1	MHz
Video-Average:	100	sweep(s) (>1)
Detector-Mode:	1	Sample (VidAvg / VidBW<300Hz)

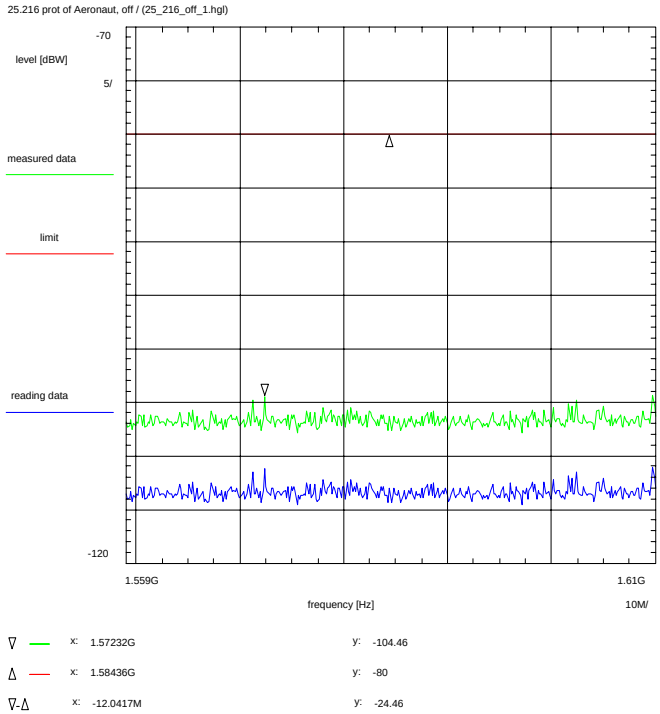
Correction (average):

Directional Coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation (U214)	+	10.0	dB
TOTAL CORRECTION:	+	16.7	dB

Limit:
Limits acc. to 25.216 c) f) h):
1559.0 - 1605.0 MHz: -70dBW/1MHz
1605.0 - 1610.0 MHz:-70 to -46dBW/1MHz
(linearly interpolated)
The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-on state shall not exceed the limits above.

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = nominal on-axis antenna gain at fo
Measurement with 1 MHz resolution/video filter and noise averaging.

Annex 3: Measurement result no. 60 (61)



Subclause: 25.216 Limits on emissions from mobile earth stations for protection of aeronautical radionavigation-satellite service

Carrier-off state, conducted measurement at the antenna-connector

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 2, see section 1.5.2

Test setup:
see annex 1: 1.2gj

Test equipment:
see annex 2: C217, R001

Data of correction:
see annex 4

Remark:

Test result: Test passed

Information on the measurement:

Environment condition:

Date & Time:	Tue 08/Aug/2006 16:45:50	
Location:	CETECOM ICT Services GmbH, Laboratory RSC-Sat	
Temperature:	25	°C
Humidity:	50	%
Voltage:	4.2	Vdc

Setup of measurement equipment:

Start frequency:	1.559	GHz
Stop frequency:	1.61	GHz
Center frequency:	1.5845	GHz
Frequency span:	51	MHz
Input attenuation:	0	dB
Resolution-BW:	1	MHz
Video-BW:	1	MHz
Video-Average:	100	sweep(s) (>1)
Detector-Mode:	1	Sample (VidAvg / VidBW<300Hz)

Correction (average):

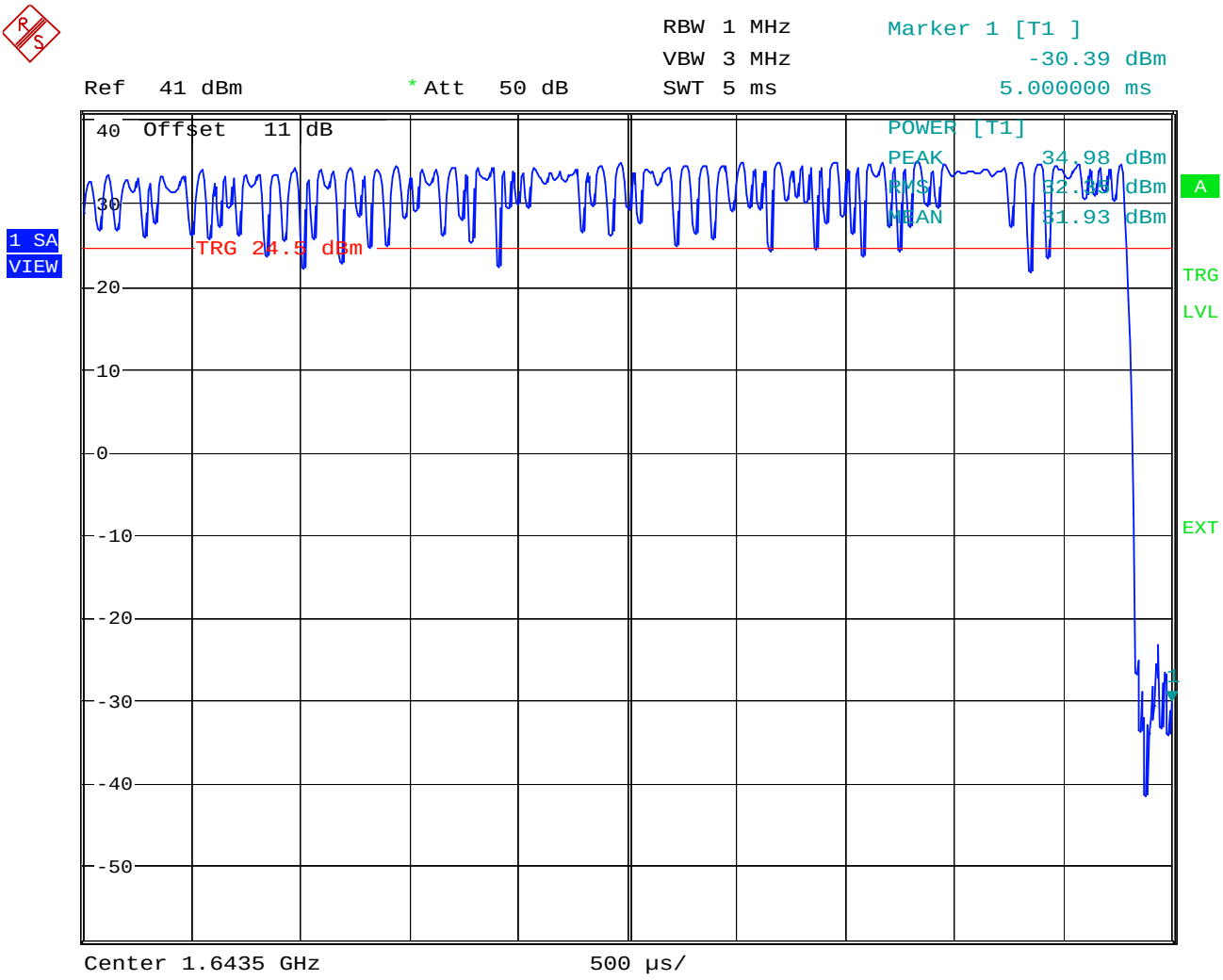
Directional Coupler	+	0.0	dB
Coaxial cable (C217)	+	0.7	dB
DUT-Antenna (on-axis)	+	6.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
Attenuation	+	0.0	dB
TOTAL CORRECTION:	+	6.7	dB

Limit:
Limits acc. to 25.216 i): -80dBW/1MHz
The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-off state shall not exceed the limit above.

Remarks:
Carrier-off state
Measurement with 1 MHz resolution/video filter and noise averaging.

Annex 3: Measurement result no. 61 (61)

Power measurement: Peak, RMS and Mean Power

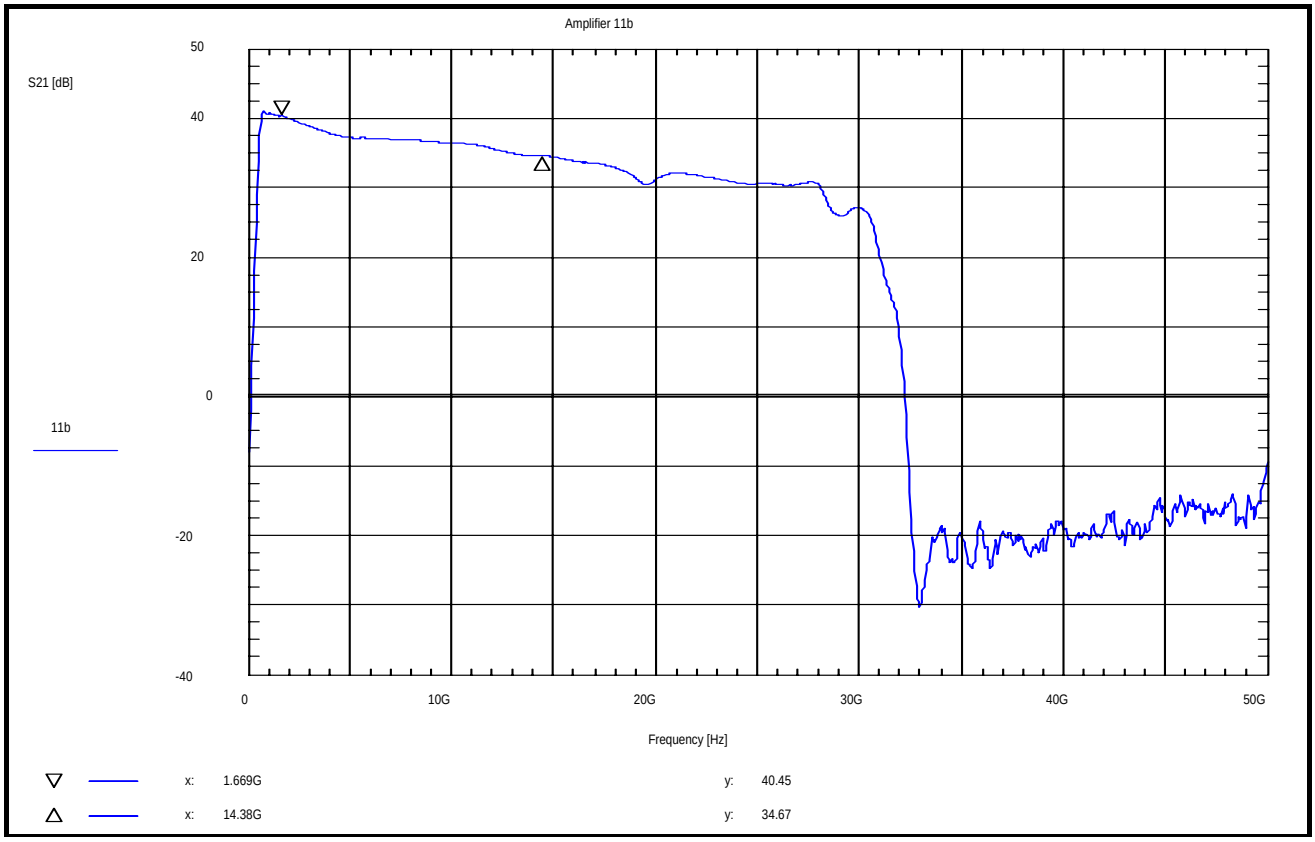


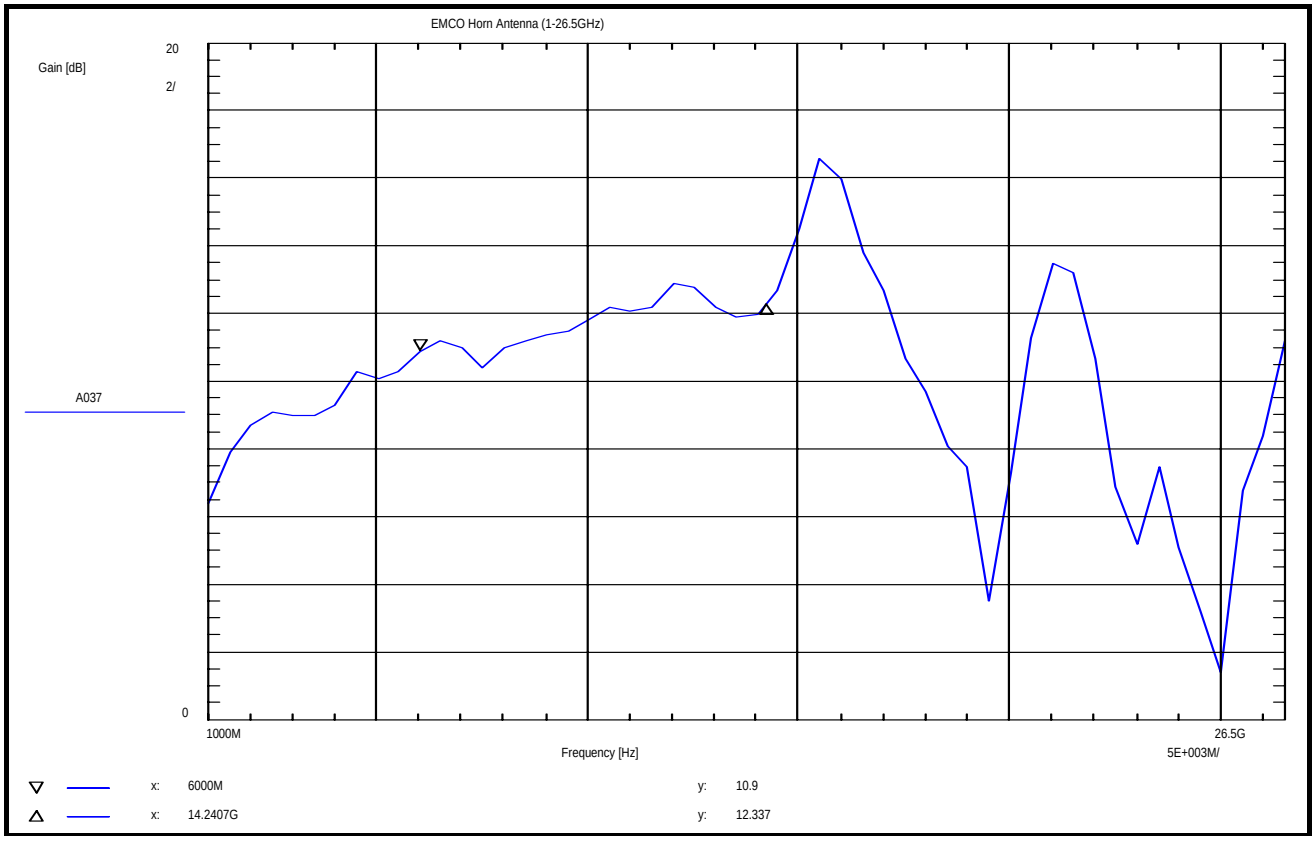
Annex 4: Data of correction

Annex 4 consists of 4 pages including this page.

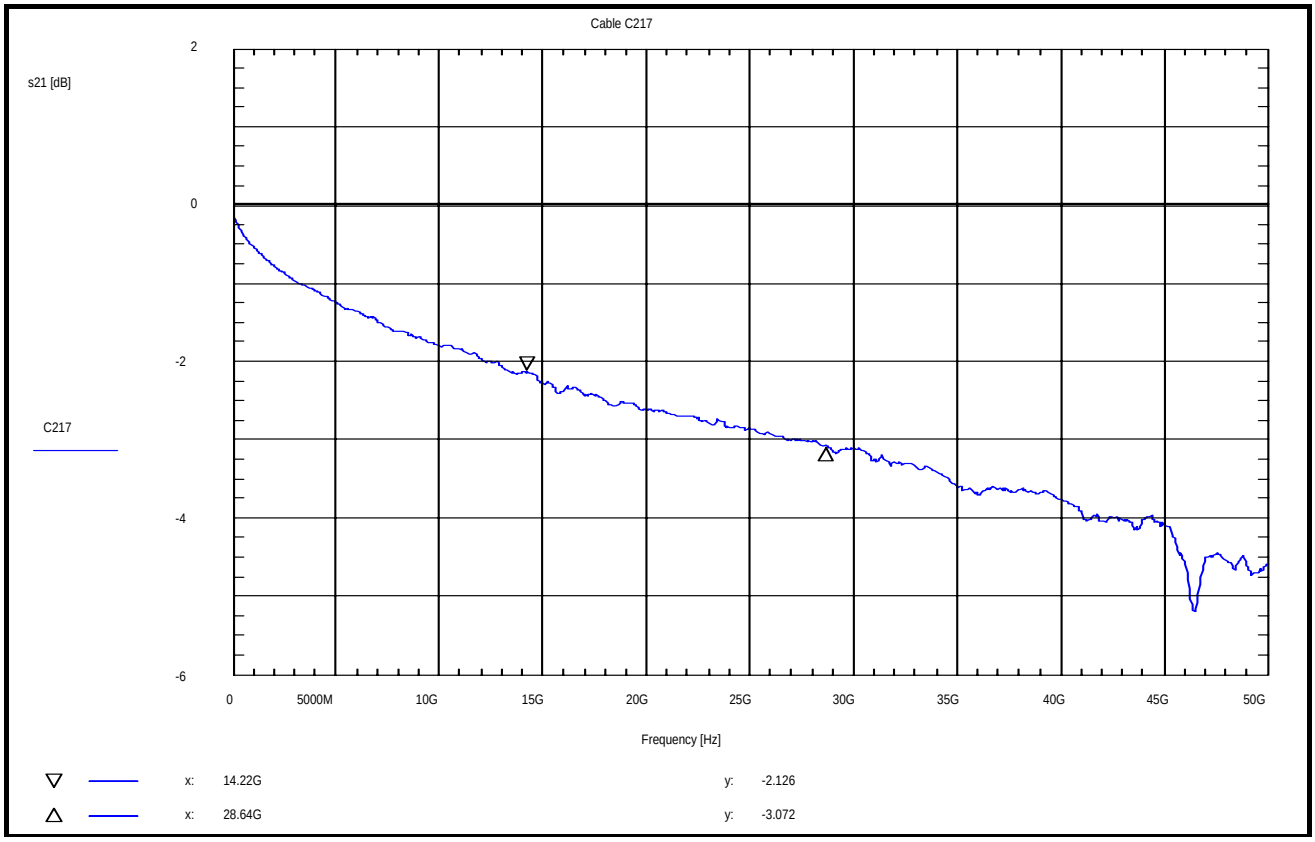
no.	list of contents
1	Amplifier ´11b´: Transmission data (NWA-measurement)
2	Gain versus frequency diagrams of Horn Ant. 1-26.5GHz: ´A037´
3	Coaxial cable ´C217´: Transmission data (NWA-measurement)
4	10dB-Attenuator N-connected ´U214´: Transmission data (NWA-measurement)
5	High Pass Filter 2 GHz SMA-connected ´WHPF´: Transmission data (NWA-measurement)

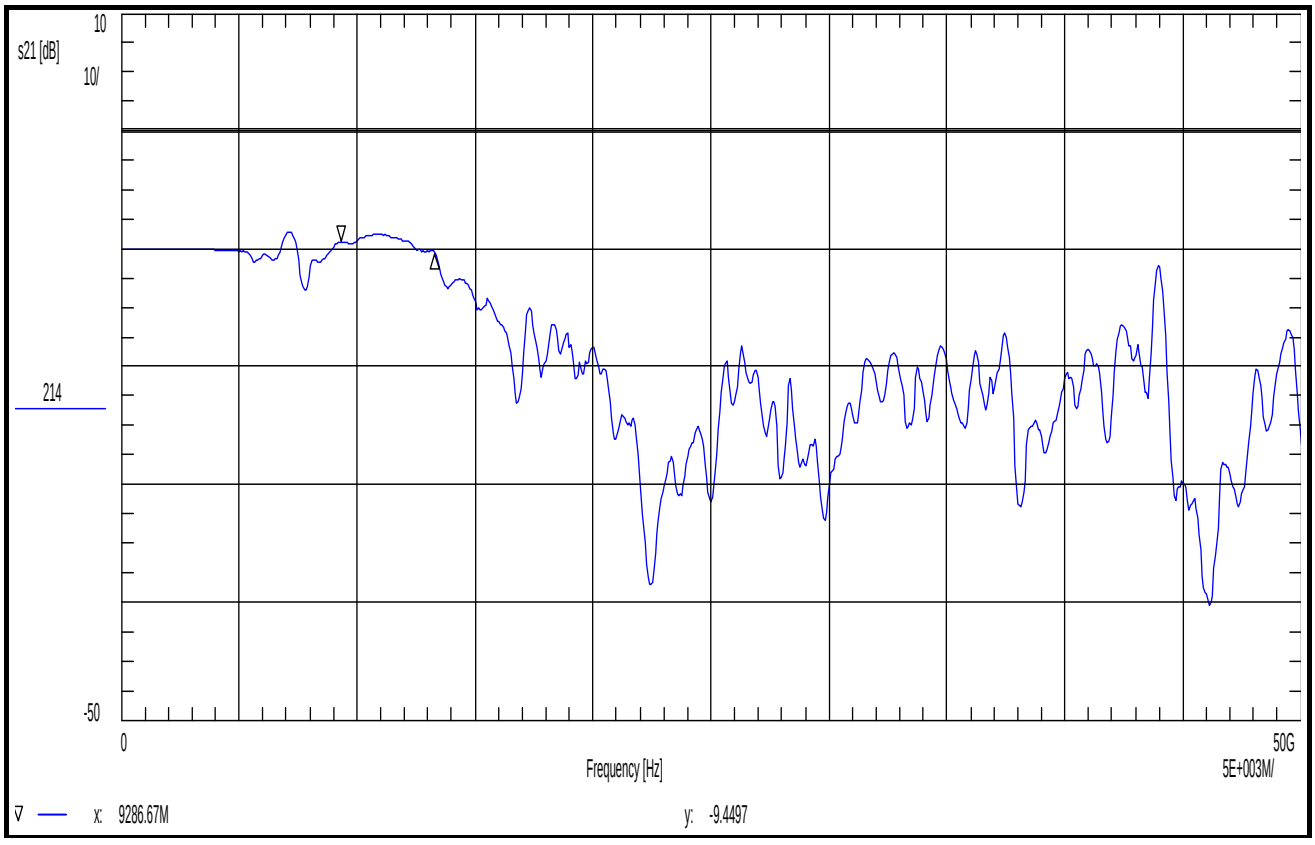
Annex 4: Data of correction 1 - 2



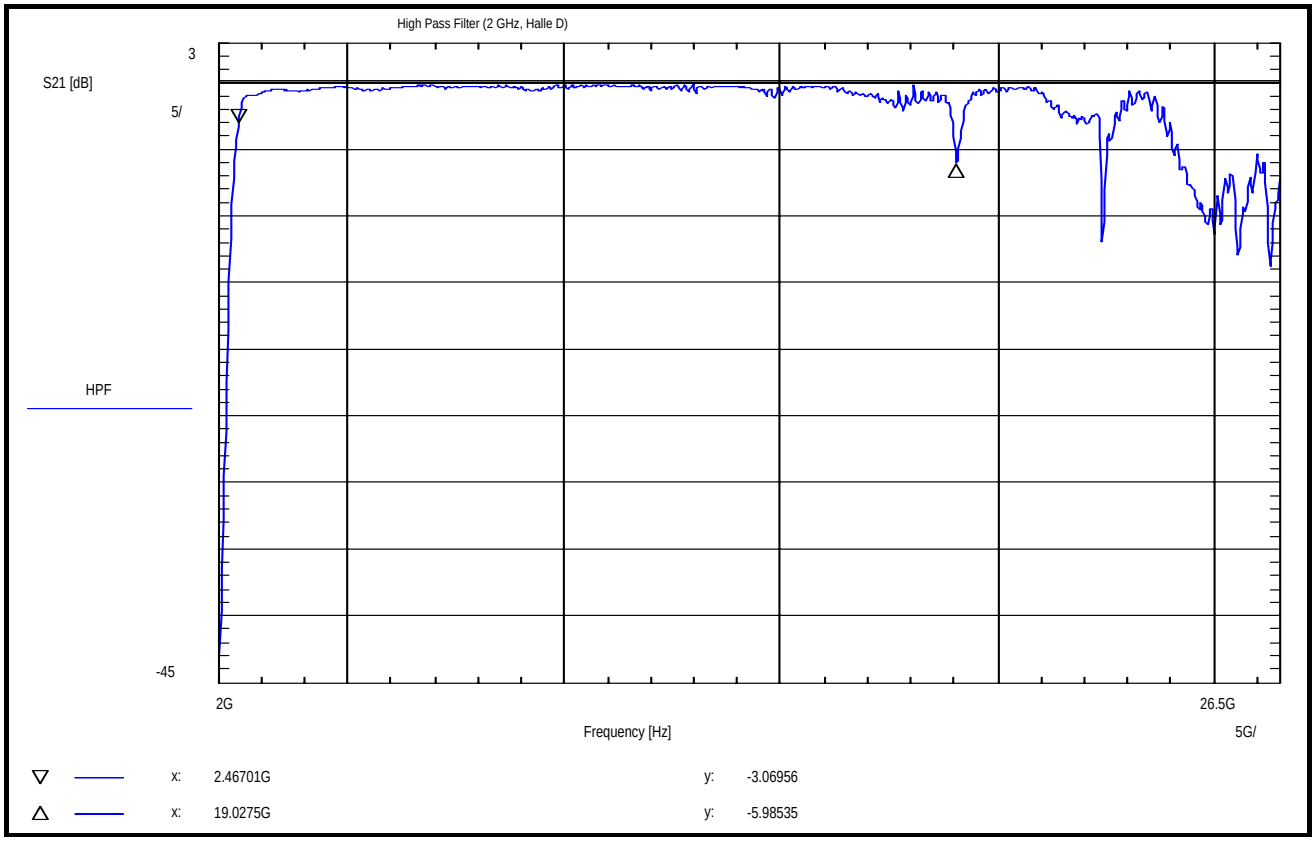


Annex 4: Data of correction 3 - 4





Annex 4: Data of correction 5



Annex 5: Photographs

Annex 5 consists of 20 pages including this page.

no.:	list of contents
1	Test setup for conducted measurements in the test laboratory: spectrum analyzer, 10 dB Attenuator, cable and Thuraya Mobile Satellite Phone
2	see #1
3	see #1
4	Spectrum analyzer and 10 dB Attenuator
5	Test setup for conducted measurements in the climatic test chamber (frequency stability): cable and Thuraya Mobile Satellite Phone
6	Thuraya Mobile Satellite Phone SG-2520, front side
7	see #6, Thuraya Mobile Satellite Phone
8	Thuraya Mobile Satellite Phone SG-2520, back side
9	Thuraya Mobile Satellite Phone SG-2520, type label
10	Thuraya Mobile Satellite Phone SG-2520, cover removed (circuit board)
11	see #10, detail view
12	see #10, circuit board
13	see #12, detail view
14	see #12, detail view
15	see #12, detail view
16	see #10, GPS receiver
17	see #16, detail view
18	Battery Pack
19	Test setup for radiated measurements in anechoic chamber (30 MHz - 18 GHz), turntable 0°